South Pacific bulletin

JANUARY, 1961

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The South Pacific Commission

The South Pacific Commission is an advisory and consultative body set up in 1947 by the six Governments responsible for the administration of island territories in the South Pacific region (Australia, France, the Netherlands, New Zealand, the United Kingdom and the United States of America).

The Commission's purpose is to advise the participating Governments on ways of improving the well-being of the people of the Pacific island territories. It is concerned with health, economic and social matters. Its headquarters are at Nouméa, New Caledonia.

The Commission consists of not more than twelve Commissioners, two from each Government. It normally holds one Session each year. There are two auxiliary bodies, the Research Council and the South Pacific Conference.

There is a Research Council meeting once a year. This may be either a meeting of the full Council, or of one or other of its three main sections, specialising in the fields of health, economic development and social development. Members of the Research Council are appointed by the Commission. They are selected for their special knowledge of the questions with which the Commission is concerned, and the problems of the territories in these fields. The chief function of the Research Council is to advise the Commission on what investigations are necessary. Arrangements to carry out those that are approved are the responsibility of the Secretary-General and other principal officers.

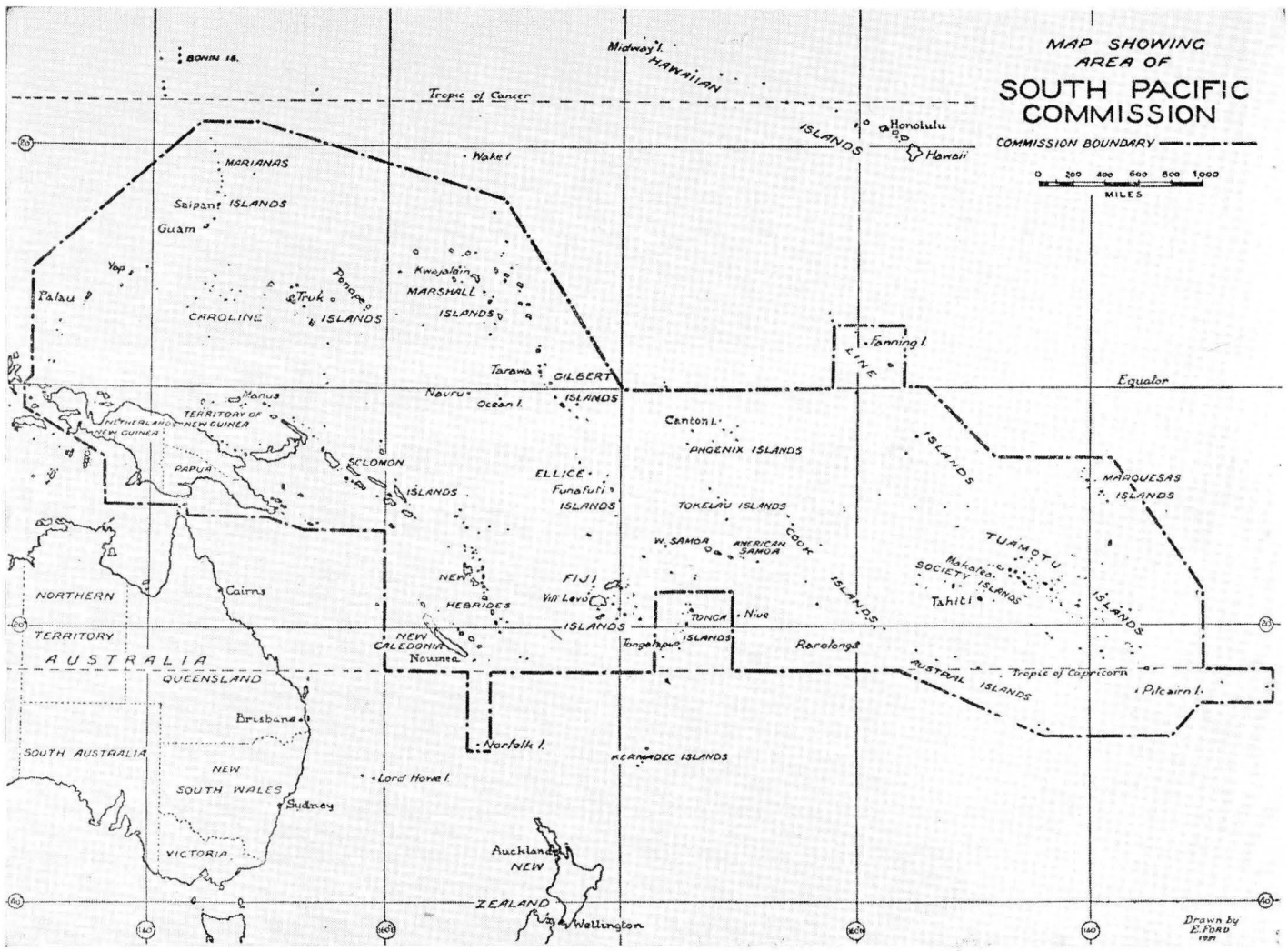
The South Pacific Conference, which meets at intervals not exceeding three years, consists of delegates from the local inhabitants of the territories, who may be accompanied by advisers. The first Conference was held in Fiji in April 1950, and was attended by delegates from fifteen territories and from the Kingdom of Tonga. The second Conference was held at Commission headquarters in April 1953. The third Conference was held in Fiji in April-May 1956, and the fourth Conference in New Britain in April-May 1959.

The principal officers of the Commission are: Secretary-General, Mr. T. R. Smith; Executive Officer for Health, Dr. T. K. Abbott; Executive Officer for Economic Development, Dr. Jacques Barrau; Executive Officer for Social Development, Dr. Richard Seddon. The powers and functions of the Deputy Chairman, Research Council, are exercised by the Secretary-General.

Further particulars of the Commission's activities may be obtained from the Secretary-General, Nouméa, New Caledonia.

FRONT COVER PHOTOGRAPH

Officers of the Department of Agriculture, British Solomon Islands, supervising the operation of a small Ceylon-type copra drier built as a demonstration model at Kukum. This simple, low-cost drier was originally developed in Malaya by Mr. F. C. Cooke, and its construction and operation were described by him in a two-part article appearing in "World Crops" for November and December 1956. Made largely of local materials, many of these driers are today producing high-quality copra efficiently and cheaply in a number of Pacific territories. (See article on page 30.)



SOUTH PACIFIC BULLETIN

VOL. 11. No. 1 JANUARY, 1961

CONTENTS

EDITOR: *A. E. Read, B.Sc.*

THE SOUTH PACIFIC BULLETIN, first published in January, 1951, features articles on selected activities in the Commission's three main fields of operation: economic development, health and social development. Articles are also contributed by specialists working in these and related fields, in the territories within the Commission area.

THE BULLETIN is given selective world distribution to people and institutions in widely differing fields sharing a common interest in the purposes and work of the Commission. It is published in two editions, English and French.

SUBSCRIPTIONS and orders for single copies should be directed to: South Pacific Commission, Box 5254, G.P.O., Sydney, Australia. Subscription rates are given in the Table below.

ALL OTHER ENQUIRIES relating to the SOUTH PACIFIC BULLETIN should be directed to: The Editor, South Pacific Commission, Nouméa, New Caledonia.

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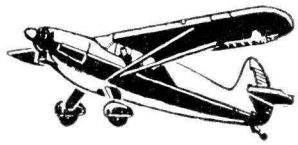
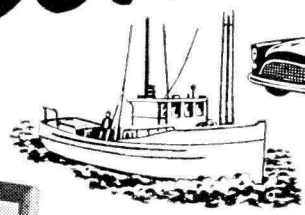
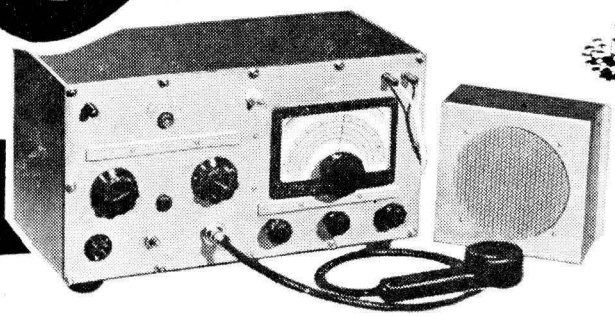




All through the ages, man has been dependent on communication. Each difficulty has been overcome, and to-day on land, sea and air . . .



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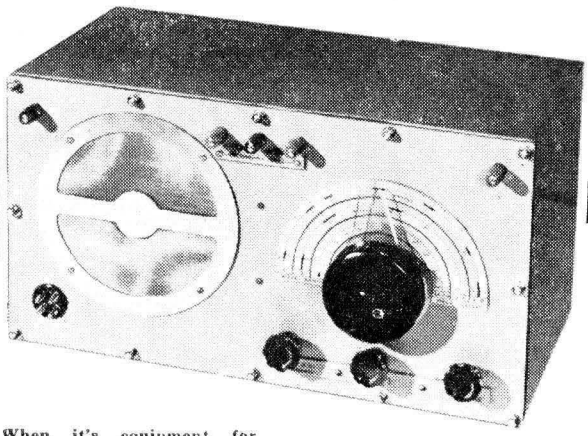

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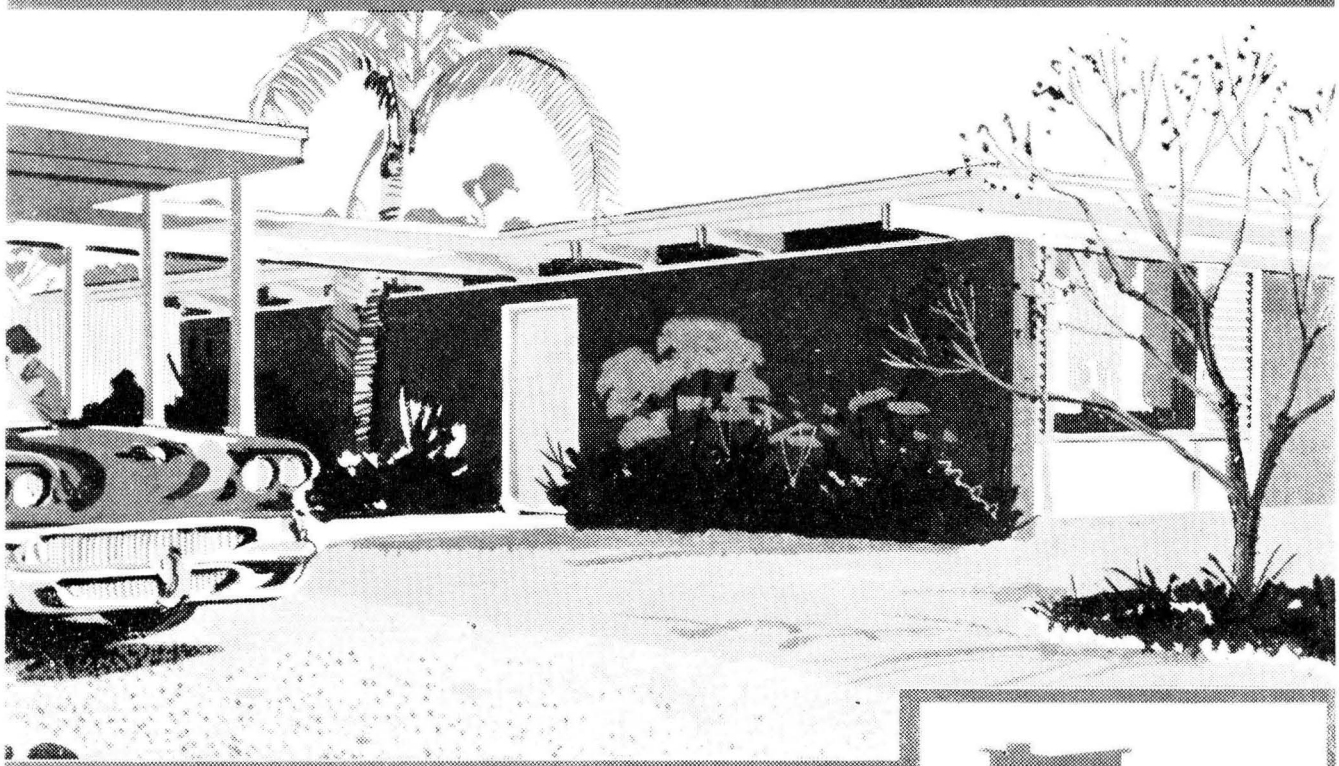

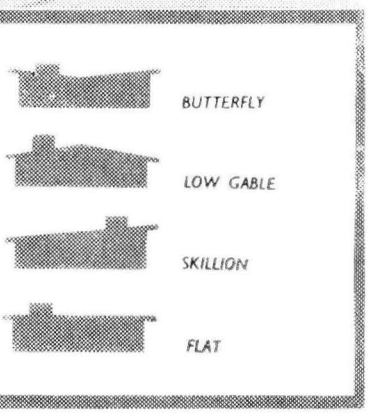

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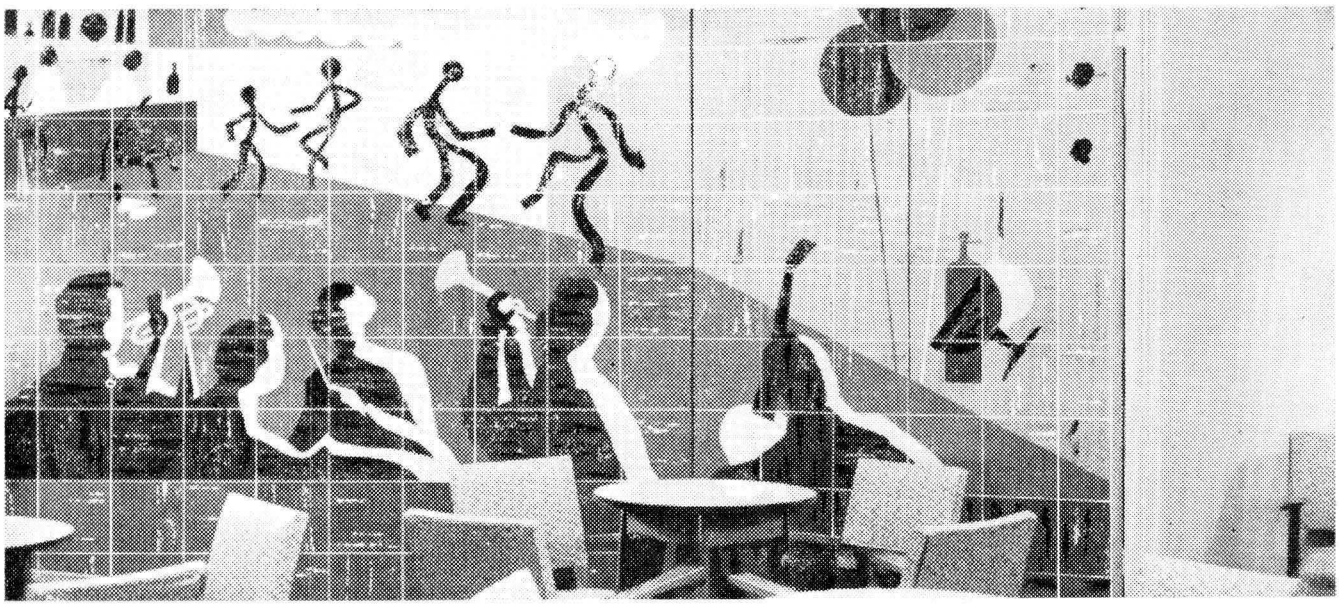
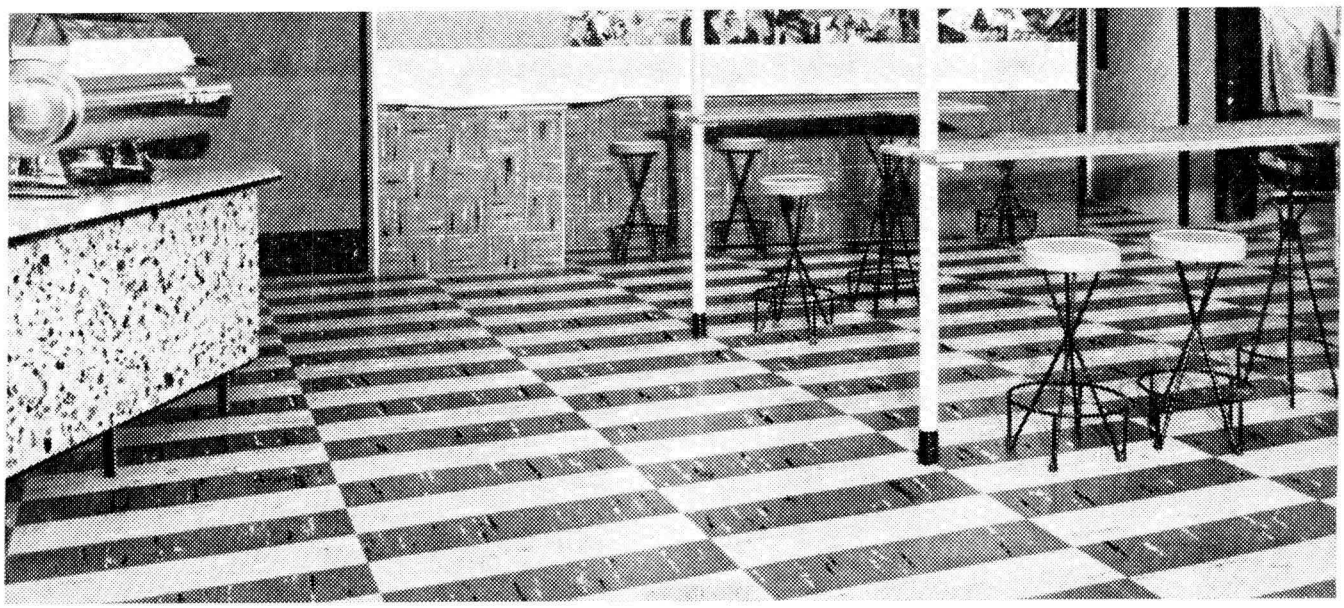


Mural in Vinylflex wall Tiles in the lounge of the Langs Hotel, Townsville. Tiles are easily cleaned, need only damp wipe-over and occasional waxing to keep full beauty. Trained applicators will install them very quickly with little or no inconvenience to your client. Ask our floor tiles specialist at any C.S.R. office.



Vinylflex floor in the Espresso Bar at Grace Brothers, Sydney. Tiles are resilient, yet tough and hard wearing. Their versatility and design possibilities are vividly demonstrated in these two pictures. Further information on Vinylflex Tiles is contained in the C.S.R. entry in Ramsay's Catalogue.

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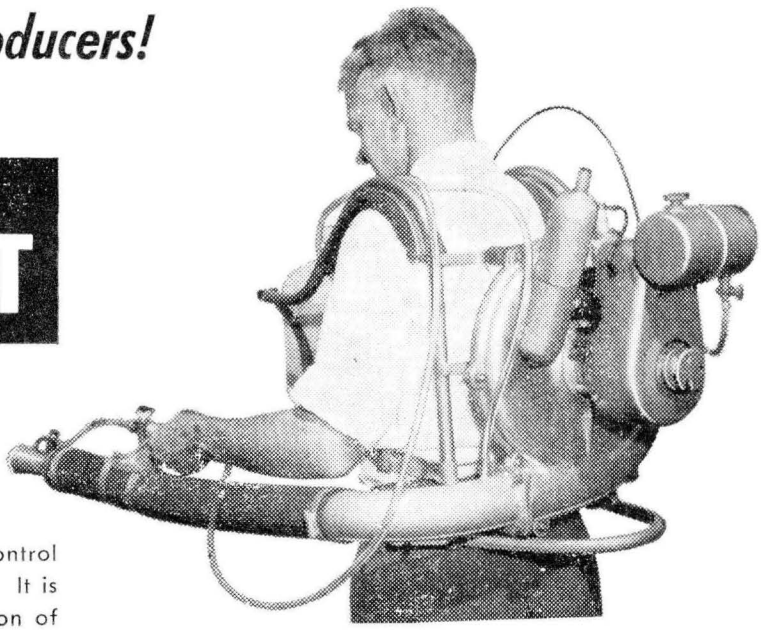

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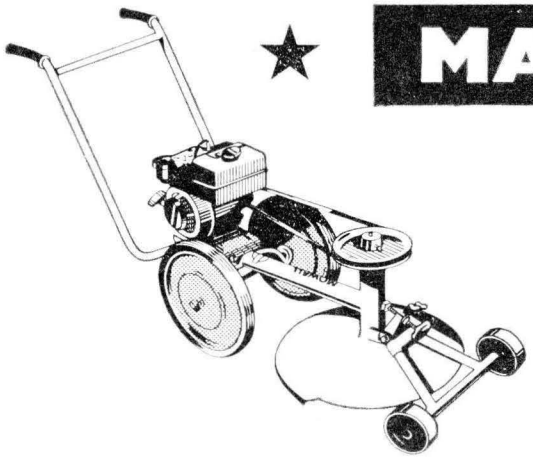

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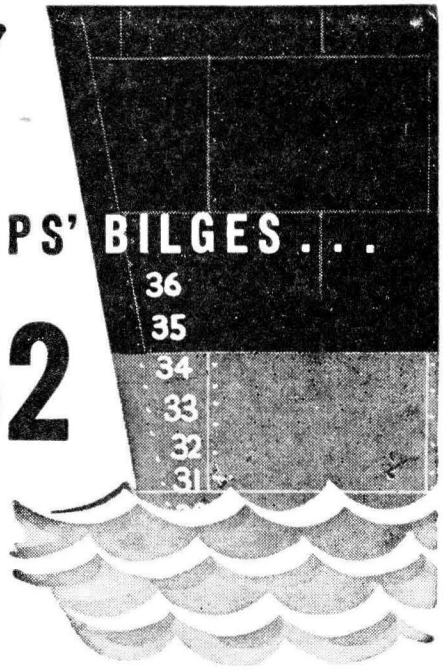

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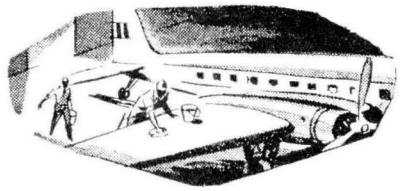

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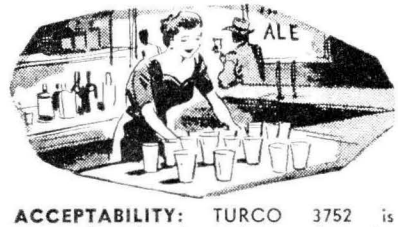

ACCEPTABILITY: TURCO 3752 is accepted and welcomed everywhere by everybody. For use in restaurants or in the home. Here is one detergent which will not harm hands or washing-machines.

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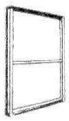

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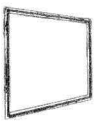

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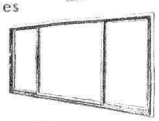

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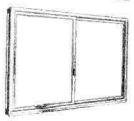

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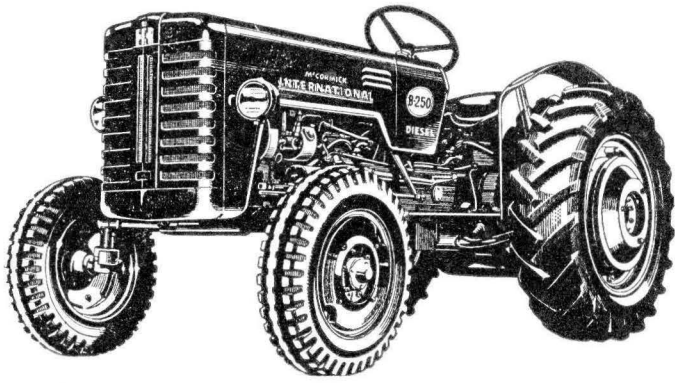

B-250

The B-250 is one of the most versatile tractors ever. It can be used on all sorts of jobs from hauling trailers to cultivating sugar cane crops, or mowing plantations, public parks or aerodromes. There is a vast range of Australian built matched equipment for the B-250, that will be useful on many applications, including high wheel equipment to give crop clearance of nearly 2 ft. The B-250 is a powerful 30 h.p. diesel tractor with 3-point linkage and a hydraulic lifting system for front and rear attached equipment. It has a rear mounted power take-off and "differential lock" which gives greater grip in hard going.

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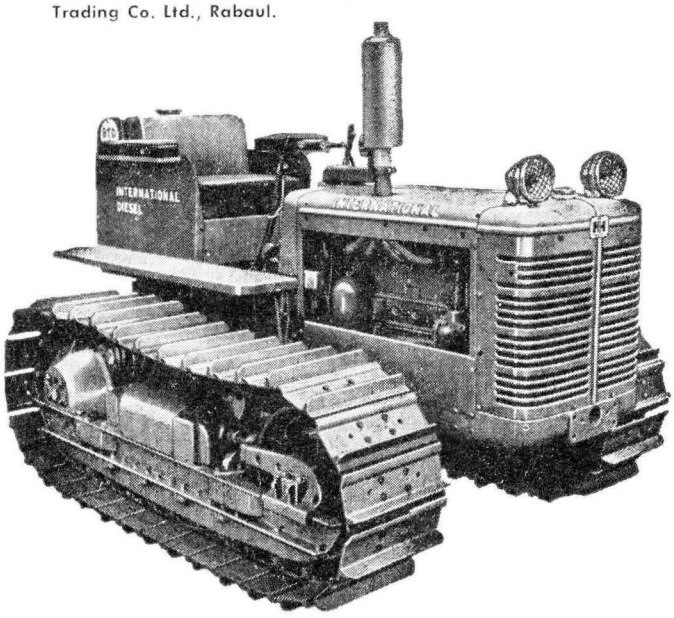

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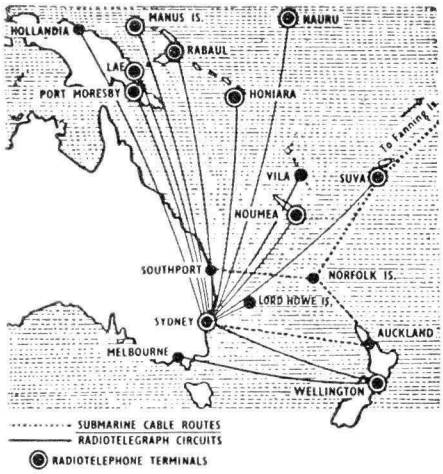

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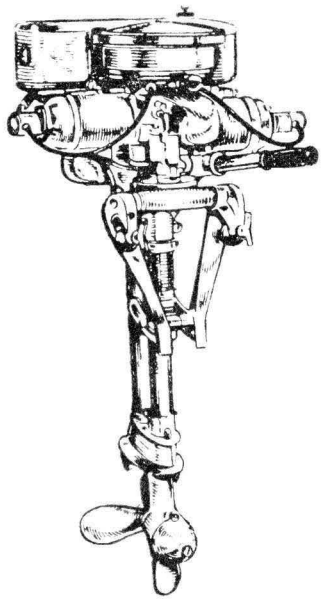

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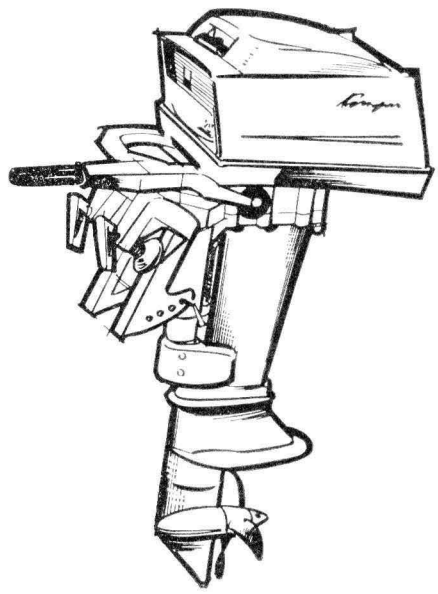

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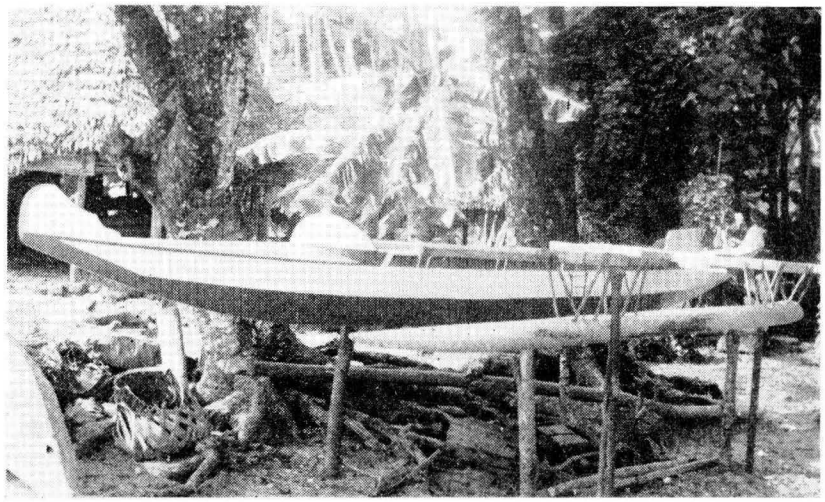


Top left: These bonito fishermen returning home have just shot the breakers in the background into the calm waters of the lagoon inside the reef. With little freeboard and a heavy load of fish this is a tricky operation, but seldom is a canoe swamped or capsized. Above: An improved type of canoe. Savai'i.

This nine-foot sailfish was landed by Mr. W. F. Meredith after a ninety-minute fight, twelve miles north of Apia.

SPC Fisheries Investigation In Western Samoa

The Commission's fisheries officer recently spent three weeks in Western Samoa investigating the present and potential development of fisheries there. He briefly reports on his visit below.

By H. VAN PEL

RECENTLY I spent three weeks in Western Samoa studying the marine resources there and investigating the possibilities of improving their exploitation.

Western Samoa has a population of over 106,000, and it is increasing rapidly. The men chiefly work their own land or are engaged as plantation labourers. While fishing is generally a part-time activity, practically the whole population is involved to some degree. Women and children gather shells and small fish while the men work nets and traps or go bonito or shark fishing outside the reef in fair weather.

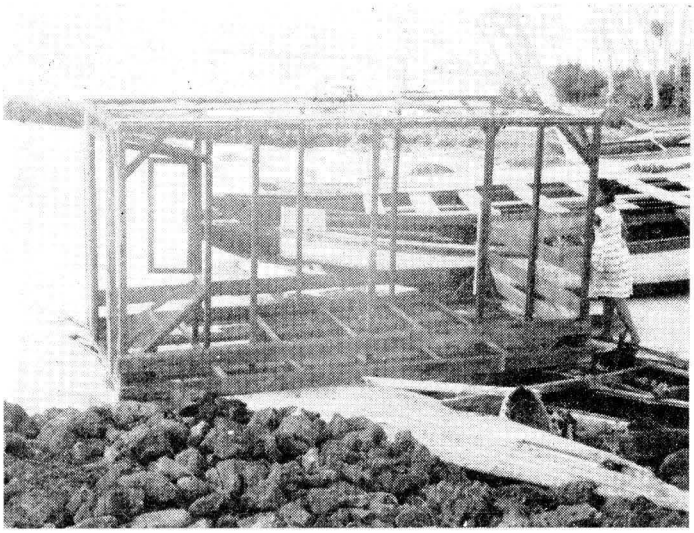
Most of this activity is at the subsistence level, and any surpluses of fish are generally distributed among friends. A few fishermen, however, do sell their surpluses, or even the whole of their catches.

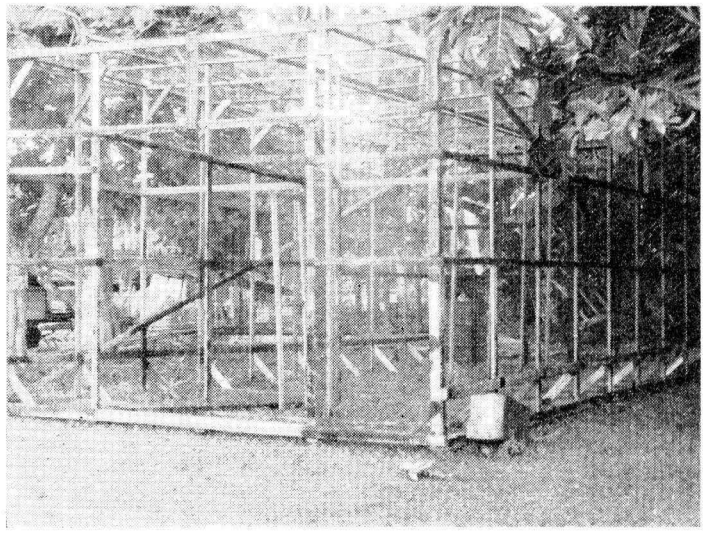
Practically every living organism—from tiny reef fish to sharks, from turtles to sea cucumbers, from sea urchins and crabs to the famous "palolo"*—is considered worth taking, and is consumed with relish. Fish livers, various shellfish, palolo and a number of other products of the sea are often eaten raw.

Skill And Courage Needed

The numerous fishing methods used in these islands range from simple hand-gathering to elaborate techniques requiring great skill and courage. A good example of the latter is bonito fishing, which might appear simple to the layman: apparently all one needs is a canoe, pole, line and lure, and a school of bonito. Actually, it is far from simple.

* See "The Rising Of The Palolo" by C. G. R. McKay, *SPC Quarterly Bulletin*, Vol. 3, No. 3, July 1953, page 35.





Above: This combination of trap and livebox is used when a shoal of horse mackerel has been surrounded with a net. The fish are driven into the trap, and can be left alive there for a few days. The trap is carried on a large double canoe. Right: The latest model of fish trap. With its 900-foot wings (not shown) this trap was the largest seen by the author in Western Samoa.

This type of fishing is often practised in areas where the only access to the ocean is through a narrow pass across which the surf breaks. This explains why the canoes are decked at both ends. These canoes must also be able to show a good turn of speed, both to shoot the breakers and to reach the schools of bonito quickly. Their hulls are therefore specially streamlined. Shooting the surf with a heavy load of fish and practically no freeboard is not easy, yet these fishermen manage it time after time and seldom swamp or capsize.

Fishing outside the reefs is not without danger, however. During my stay in Samoa two fishermen disappeared with their canoe and were never found again.

Seabirds Indicate Presence Of Fish

Once at sea, bonito fishermen spot schools of bonito by the presence of flocks of seabirds. To most people these birds would only mean that fish were present. To fishermen, however, they reveal the size of the school, whether it is swimming deep or near the surface, and the direction in which it is going.

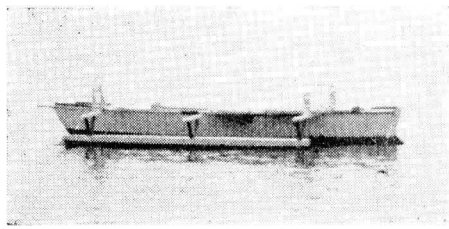
It is often necessary for fishermen to paddle for long distances to reach one of these schools.

Bonito fishermen mostly use the traditional lure with a shank of pearl-shell and a hook of bone or tortoiseshell. The size and colour of these lures is quite important, and several lines, each equipped with a different lure, are attached to the same pole. The lures are tried one at a time until the best combination of colour and size has been found.

Spearfishing Popular

Underwater spearfishing is also widely practised in Western Samoa. A catapult, or "shanghai", and a thin steel spear are used. Often a group of divers will drive fish into a small area and then spear them.

Carrying wounded fish in the water is dangerous in shark-infested waters, but although hundreds of people wade, swim or dive every day, shark attacks are very rare.

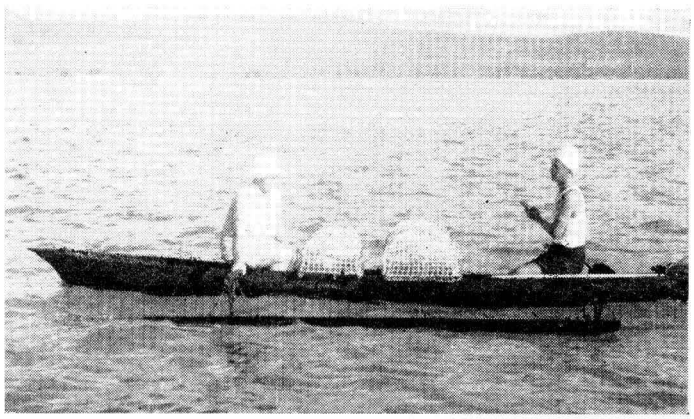


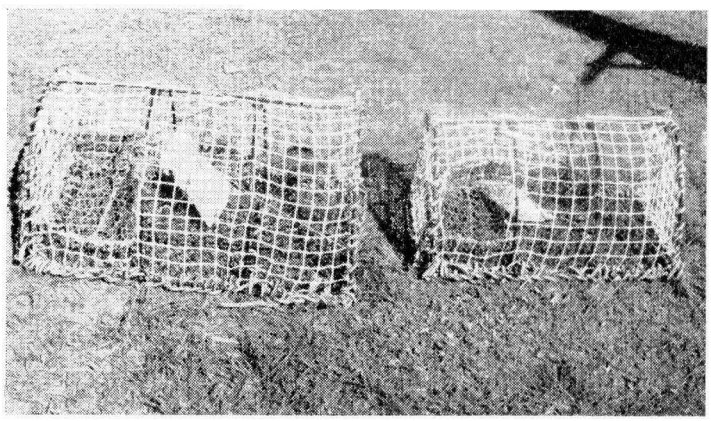
An outboard-powered decked canoe built of plywood and used by its Apia owner for sport fishing. The author considers this type of canoe would have important advantages for commercial fishing.

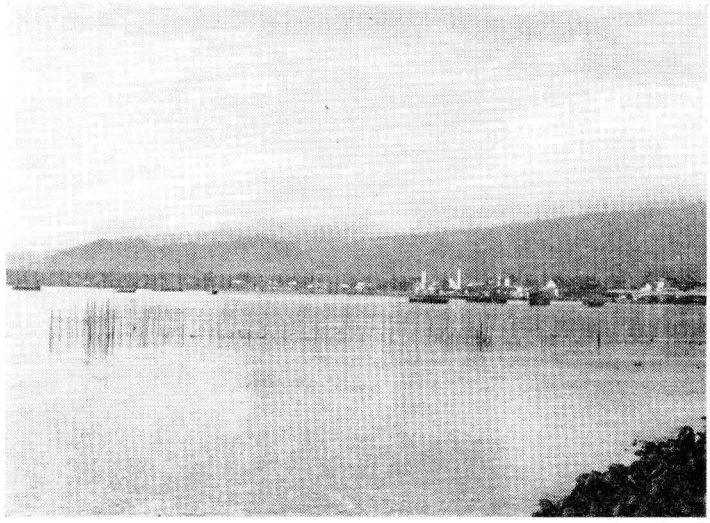
Samoan Fishermen Progressive

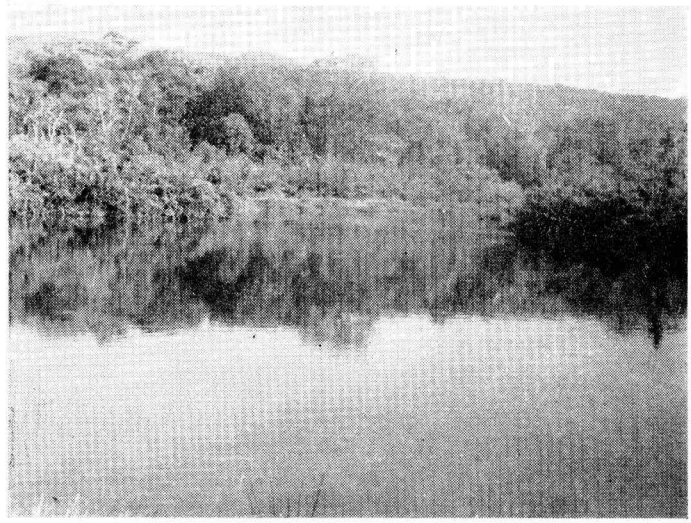
I could give many instances of the skill demonstrated by Samoans in their many fishing methods, but what appears

Left: The author testing collapsible nylon and steel-framed lobster traps on the reef off Upolu. The spiny lobsters of Western Samoa would not enter them. Right: Close-up of traps.









Above: A fixed fish trap near Apia. It is made of wire netting and stakes. This type of trap is a common feature around Upolu and Savai'i. Right: This large natural freshwater pond on Savai'i is teeming with good-sized tilapia.

to me more important is that, far from being conservative as so many fishermen are, they constantly strive to improve their fishing gear and methods. Nylon nets are not yet in use in these islands, but nylon lines, steel hooks and large cotton nets are common.

Large fish traps of various types are found. They are generally made of wire netting supported by wooden stakes.

One type of trap observed in Upolu deserves special mention: it is a box-like trap made of chicken wire stretched over a wooden frame. The entrance can be closed and the trap then becomes a live box, where fish can be held for a few days.

The largest trap of this type had just been completed at the time of my visit. It was 23′ long, 11′ wide and 10′ high. Two wings 900′ long and 10′ deep made of cotton net lead the fish into the trap. These traps are made to catch horse mackerel (*Decapterus* sp.) and mullet inside the lagoon.

In Western Samoa, fishing takes place mainly in the lagoon and on the reefs within easy distance from shore.

Problems And Possibilities

The general practice of fishing by a large population over limited grounds has resulted in overfishing, especially of those species which live permanently in these areas. It will be necessary to take measures to prevent more serious damage, and recommendations have been made to this effect.

In spite of all this activity Western Samoa still needs more fish. It is expected that small mechanized craft would be able to make up the difference between present production and needs, by opening up new possibilities for ocean fishing.

To suit the various types of shore found around these islands, two types of craft have been recommended. According to the presence or absence of harbours, surf, etc., one or the other should provide a solution to the problem of extending deepsea fisheries in these islands, and possibly in other South Pacific territories.

Sport Fishing And Inland Fisheries

This short description would not be complete without some mention of sport fishing activities and of inland fisheries.

A number of people, chiefly from Apia, maintain small boats or canoes for sport fishing. These are equipped with outboard motors, and their owners often make good catches of barracuda, trevally, bonito, yellowfin tuna and other game fish.

Tilapia mossambica was introduced to Western Samoa a few years ago by the Department of Agriculture. It thrived, and fingerlings were distributed. During a visit to Savai'i I was able to observe a large natural pond which is teeming with tilapia of about half a pound in weight. Fishing in this pond has been forbidden, but will be allowed soon.

Tilapia raised in man-made ponds also show a good rate of growth.

SPC Officer To Collect Plant Material Of Special Breadfruit Varieties

Plant material of special breadfruit varieties growing on isolated Kapingamarangi Atoll, in the United States Territory of the Pacific Islands, will shortly be collected by SPC plant introduction officer Jan Coenen and sent by air to French Polynesia via Hawaii.

Mr. Coenen will leave headquarters on January 12 by air for Ponape, thence by sea to Kapingamarangi Atoll, six hundred miles to the south, and one degree north of the Equator. He is undertaking this mission because of a request received by the Commission from the Department of Agriculture in French Polynesia. The Administration of the United States Trust Territory is co-operating in the project by making available sea transport for Mr. Coenen, and air transport for the plant material he collects.

After completing this task Mr. Coenen will visit the Marshall, Caroline, and Marianas Groups of the Trust Territory to continue the coconut and breadfruit survey of the region began two years ago by Dr. Jacques Barrau, SPC executive officer for economic development.

SPC Co-operatives Officer Holds Training Courses In Fiji

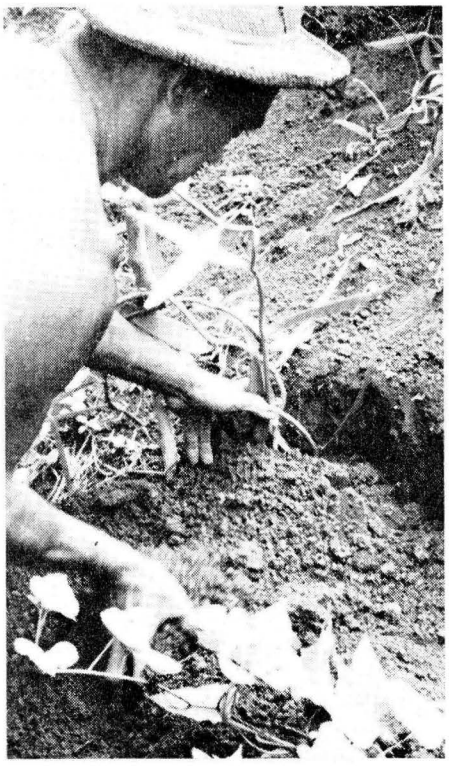
Two identical training courses in the principles and practice of co-operative law were held for Fijian co-operative officers in Suva recently by the Commission's co-operatives officer, Mr. R. H. Boyan. The first course was held from October 17 to November 12, and the second from November 21 to December 17.

The students comprised twelve inspectors and assistant inspectors of the Fiji Department of Co-operatives staff, two supervisors employed under the Audit and Supervision Fund, and the manager of the Rotuma Co-operative Association.

The main purpose was to improve the ability of the students to handle situations and problems as they arise in the course of their duties, with particular regard for new co-operative developments that may occur.

Mr. Boyan, who was the only lecturer, arranged weekly tests and a final examination for the students taking each course.

Vanilla—A Profitable Cash Crop In French Polynesia



This article describes how vanilla is grown, processed, and marketed in French Polynesia, one of three territories that together produce the bulk of the world's vanilla.

By V. D. STACE*

Left: Tahitian grower planting a vanilla cutting. Right: Typical two-year-old vanilla plant in a Raiatea plantation.

THE Malgache Republic, (formerly Madagascar), French Polynesia and Mexico are the main vanilla-producing territories, providing together about 80 per cent of the total vanilla entering world trade. During the last four years world market prices for vanilla have increased steadily, and under the stimulus of rewarding returns, increasing attention is being paid to the commercial cultivation of this rather unusual cash crop.

Although in the South Pacific region vanilla production for export is confined to the islands of Tahiti, Moorea, Raiatea, Tahaa, Huahine and Bora Bora—all in French Polynesia—experimental work has been undertaken in other territories. In Vava'u, in the Kingdom of Tonga, the stage has been reached where external assistance is being sought in promoting the development of this crop on commercial lines. While market prices for vanilla remain at high levels it seems probable that government officials and private individuals throughout the South Pacific will become increasingly interested in local prospects for introducing this crop as an appropriate means of diversifying production.

The vanilla blossom remains open for only a day. In French Polynesia the flowers fail to set fruit unless artificially pollinated by hand, an operation usually carried out by Tahitian women.

Against this background the following brief description of vanilla production trends and methods in French Polynesia is presented.[1]

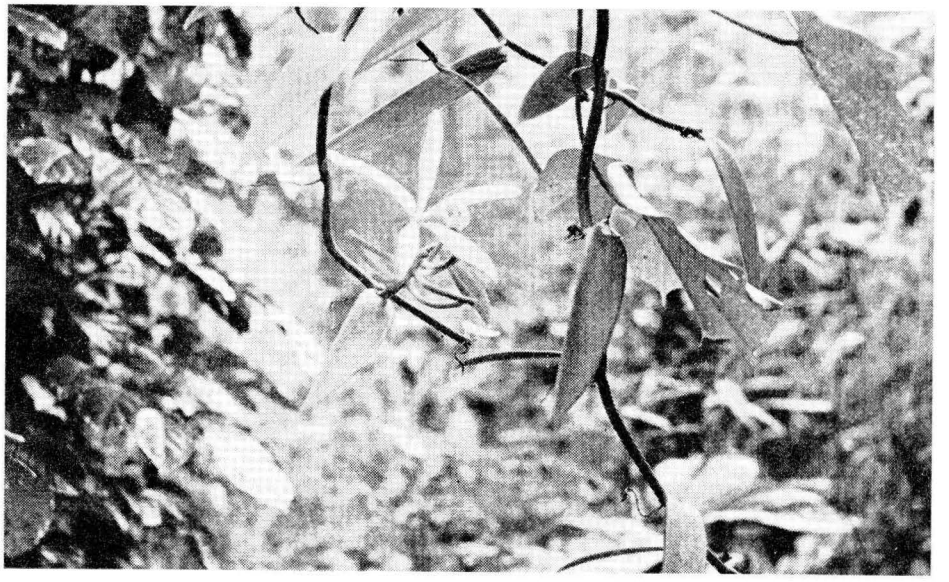
* Economist, South Pacific Commission.

[1] The accompanying photographs were taken by the author during a recent visit to Raiatea.

*EXPORTS OF VANILLA FROM FRENCH POLYNESIA**

Year	Total Exports (Metric Tons)	Total Value of Exports Millions Frs. CFP	Average Value Per Ton Exported Thousands Frs. CFP	Year	Total Exports (Metric Tons)	Total Value of Exports Millions Frs. CFP	Average Value Per Ton Exported Thousands Frs. CFP
1949	300	35	116	1955	123	78	638
1950	206	44	215	1956	163	97	598
1951	196	39	201	1957	177	128	727
1952	190	44	232	1958	174	164	942
1953	137	54	392	1959	177	224	1267
1954	130	121	923				

* Source *Situation Economique et Perspectives D'Avenir*—1959-1960 issued by Services des Affaires Economiques et du Plan—Papeete.



Vanilla Production In French Polynesia

During 1945 the total exports of vanilla from French Polynesia were about 125 tons (metric) valued at 24,600,000 francs CFP. Exports increased steadily in volume until 1949, when a total of 300 tons (metric) were exported, but in that year prices declined, averaging less than 117,000 francs CFP per ton, with the result that the recorded total value of the territory's exports of vanilla in 1949 was just under 35,000,000 francs. CFP. As shown in the foregoing table, this unfortunate coincidence of low prices with a record volume of exports in 1949 initiated a decline in the production of vanilla in French Polynesia which persisted for several years notwithstanding the steady—sometimes spectacular—improvement in export values that has occurred during the past decade.

In French Polynesia the local Chinese people traditionally have been the section of the community primarily concerned with the vanilla industry. At the present time the processing and marketing of the crop is still predominantly an occupation of the Chinese community, but Tahitian land holders have been playing an increasingly important part in planting and cultivation. Over the years the skills required for the artificial pollination of the vanilla flowers have been acquired by many Tahitian women, who are now widely employed in this esssential task in the six islands concerned.

Cultivation Techniques

Vanilla is exported in the form of dried "beans," which are the pods or fruit of a plant that is actually a member of the orchid family. This plant is a native of Mexico where vanilla has been used for centuries as a food flavouring. The vanilla plant is quite readily propagated by cuttings but as the plants are *epiphytes,* host trees of a suitable bark type are required as living supports for the growing orchid if it is to flourish. As shown in an accompanying photograph, in French Polynesia vanilla cuttings are planted beside green stakes of a suitable kind which as they grow, provide partial shade as well as support and a source of nourishment for the maturing orchid.

Usually the first crop is taken three years after planting. Production is susceptible to variations in weather and is also limited by the nature of the vanilla plant itself.

In its native country pollination can be effected by bees of the genus *Melipona,* but in other parts of the world these bees are absent and the plant fails to set fruit unless artificial pollination is practised. This orchid has one annual flowering season, and a single plant may bear hundreds of flowers which, individually, remain open for only about 24 hours. During the flowering season trained workers, usually Tahitian women in French Polynesia, are employed daily to pollinate the individual blossoms by hand.

Each flower is equipped with both male and female elements, but they are separated by a partition that makes self - fertilisation virtually impossible. Consequently, if marketable quantities of vanilla beans are to be harvested, artificial pollination of open flowers must be carefully undertaken almost daily throughout the flowering season. In the hands of a skilled operator, using a small splint of wood for this purpose, the pollen masses transferred to the sigma of the same flower usually fertilize 50% to 60% of the blossoms so treated. Since over-pollination weakens the plant it is considered prudent to limit the production of each, especially in the third and fourth year of growth.

In most territories the vanilla plant is susceptible to virus and other types of disease and, in French Polynesia, it is customary to abandon mature plantations after nine or ten years' cultivation. Moving to completely new areas to minimize risks of contamination through infected soils, new plantations are then developed to replace the former areas, which are abandoned or converted to other use.

An established Chinese-owned vanilla plantation, inland on Raiatea.

Vanilla beans ready for harvesting. They do not have the flavour and aroma of vanilla until cured, a process taking from three to six months to complete.

Processing And Marketing

In French Polynesia the beans produced by Tahitian growers are usually purchased when green by Chinese trader-exporters who specialize in this form of enterprise. Chinese and French vanilla growers who operate larger plantations tend to process and market their own crops with the assistance of skilled operators in charge of critical processes.

When harvested, the beans do not possess the flavour and the aroma associated with vanilla as flavouring agent. The beans must undergo a curing or drying process requiring from three to

Vanilla beans drying on the roof of a Chinese trader's store.

six months to complete. During the first stage of this curing process, which takes place indoors, the beans gradually turn from green to black and their surfaces become coated with an oily secretion. As shown in two accompanying photographs, the curing of the black, oily beans then continues in the open air.

At this stage the beans, protected to some extent by their oil coating, continue their curing or drying exposed at times to both sunshine and rain. In due course the processing of the beans is taken a further stage under cover where

In the curing process the beans are sorted into batches, each being handled in a stout piece of cloth. In the background are graded vanilla beans tied in bundles awaiting packing.

they continue to lose weight, becoming darker and oilier as maturity proceeds. At all stages considerable care is taken to eliminate defective produce and to establish "batches" of beans of even quality and maturity.

The final sorting and bunching of the vanilla beans takes special care and experience. Before being tied into the neat bundles shown in the above photograph, the beans are carefully graded for quality and size. Finally, the bundles of graded beans are packed in small tin-lined boxes for export. When so packed the contents of any case are liable to suffer very serious damage if even a single defective bean in the container provides a source of contamination.

In addition to the risks inherent in the protracted processing of the beans the vanilla trader-exporter in French Polynesia often takes quite considerable marketing risks, since competition for green bean supplies is often keen and wide market price variations often occur between the months of harvesting (February, March and April) and the time of realisation. To avoid selling on disappointing or adverse markets some local trader-exporters are able and willing to hold their stocks of vanilla over considerable periods, awaiting a change to more favourable market prices.

Use Of Substitutes

Recent reports[2] suggest that vanilla-producing countries are showing considerable interest in a proposed United States Food and Drug Administration ruling requiring that vanilla ice cream, if made with artificial flavouring, is to be so labelled. Such a decision, if enforced, could substantially increase the total demand for vanilla beans.

The United States has consistently provided the world's major market for vanilla beans. In 1959 it was estimated that United States imports of vanilla beans totalled 1.1 million pounds of an estimated total international trade for that year of 1.9 million pounds.

Since World War II the wider use of vanillin, the synthetic vanilla substitute, has been a factor limiting the use of the natural product. Currently, United States production of vanillin is estimated to total about 1.5 million pounds per year. This substitute for natural vanilla is now manufactured mainly from lignin, a compound derived from wood pulp in paper manufacture. It is sold to food manufacturers and others at approximately $3 (U.S.) per pound.

The price of this synthetic flavouring during the past ten years has not varied more than 25 cents above or below the $3 per pound level, whilst there have been considerable variations in world prices of vanilla beans. As at December, 1959, for instance, the United States market price for vanilla beans was around $16 per pound; three years before it was only about half that price.

Comparatively low and stable prices for the synthetic substitute vanillin have given this product a continuing economic advantage in food processing, and in the past a growing tendency has developed to use either vanillin as a total substitute or mixtures of the synthetic and the pure flavouring.

In the United States some doubt is being expressed as to how rapidly the production of vanilla beans could be stepped up to meet the possible increase in American requirements, should a future administrative ruling there requiring manufacturers to declare their use of synthetic vanilla flavouring increase the demand for pure vanilla.

[2] See *Foreign Agriculture*—June, 1960; published by the United States Department of Agriculture.

Langa Fonua In The Kingdom Of Tonga

Recently the Commission's women's interests officer spent six weeks in Tonga helping to conduct courses for women leaders from villages scattered throughout the Kingdom. As she reveals in this article, during her stay there she was deeply impressed by the work of the Langa Fonua, a women's organization dedicated to the progress of home and community.

By MARJORIE STEWART

Members taking the second course, photographed in front of Langa Fonua House.

THE Tongans are a branch of the Polynesian race. Their origins are lost in antiquity but they have been living in their scattered Pacific Islands for a very long time, as their oral tradition indicates.

Their isolation and environment have evolved a way of life suitable to local need and comparatively unshaken by western impact. They are a self-reliant, resourceful, agricultural people, exceptionally gifted in song and melody, showing respect to their chiefs and devotion to their Island home. Tonga is a self-governing kingdom with a constitutional monarchy, as well as a British Protected State by virtue of a Treaty of Friendship signed in 1900 and recently revised.

Since 1918, when she succeeded her father on the throne, Her Majesty Queen Salote Tupou, G.C.V.O., G.B.E., has reigned over this group of 150 Pacific islands which Captain Cook, when he visited them in the latter part of the 18th century, aptly named "The Friendly Islands."

Queen Salote has exercised a great influence on the destinies of her people. Education, already universal in the time of King George I of Tonga, who died in 1893, has advanced, while medical and health services have been extended and communications improved. Infant welfare is one of the many social services that owes its progress to the Queen's personal inspiration.

Langa Fonua Formed In 1954

Women's work in Tonga is recognised throughout as having a vital part to play in the natural structure and economy. It was after Queen Salote returned from her triumphant participation in the Coronation of Queen Elizabeth in London in 1953 that she called together a group of leading women in Tonga, particularly members of the Pan-Pacific and South-East Asia Women's Association, to discuss the formation of a local equivalent to Women's Institutes.

Out of this came the *Langa Fonua*, which was inaugurated on May 7, 1954. It is a movement dedicated to the progress of home and community through the continuous education and inspiration of the women throughout the villages.

Among a population estimated in 1955 as 56,000 there are now approximately 1,000 members in Tongatapu and the other islands, with 23 branches in Tongatapu alone, each with its own Leader and Secretary, while the policy and general directive for the movement comes from the Central Committee elected at the annual general meeting. Queen Salote is President of the *Langa Fonua*.

Headquarters House In Nuku'alofa

An outstanding feature is the headquarters house in Nuku'alofa, in the centre of that small town. It is a spacious, cool, handsomely equipped dwelling house, surrounded by a wide verandah, with a well-nurtured flower garden at the front and a large stretch of smooth lawn at the back, edged with laden banana trees and other useful sources of food and shade.

The *Langa Fonua* House was bought in September, 1957, for £4,500, the money and Tongan furnishings (mats, etc.) being collected throughout the Kingdom by women's groups. It is used for general and committee meetings and for a series of valuable classes in cookery, sewing, child welfare, first aid, English and Tongan. These classes are attended by members of *Langa Fonua* from Tongatapu villages and are taught by volunteer instructors, both Tongan and European. It is a dignified yet functional house, preserving in its family furnishings the quality of a lived-in home.

Five-Day Courses For Women Leaders

It was in this house that three five-day courses were conducted by Miss June Summerton of the South Pacific Health Service and myself, and in its spacious living rooms that we ate and slept and had our office.

We were cared for with that all-inclusive, thoughtful, unobtrusive and capacious hospitality for which Tonga is famous, delicacies or extra equipment frequently appearing from the Palace.

Receptions, dinners, cocktail parties and above all feasts and a gay and totally unsuspected surprise party organised by Princess Melenaite with the

Some members of a sewing class.

ever-competent assistance of the A.D.C. punctuated our days and nights.

Daily Feasts

During the first course the delegates came from the far-away islands of Vava'u and Ha'apai and the nearer Eua, so they were daily entertained by a different local village which provided them with three handsome meals, the midday dinner being served on low tables on the *Langa Fonua* back verandah. A lorry would arrive between 11.30 and 12, a team of servers gaily garlanded would leap forth and unload great plaited coconut frond *pola* or stretchers laden with delicious food—long yams or taro down each side forming a protective wall for the pyramid of whole sucking pigs (the pig population in 1955 was 30,000), chickens, shellfish, fresh fish, salads, water melons and the popular *lu pulu* (corned beef cooked with coconut cream and wrapped in taro leaves) as well as a special local cassava and caramel pudding also wrapped in green leaves.

We would sit, a company of about 35 to 40, on the floor round this long laden table and eat with our fingers, helping ourselves freely while the host team entertained us with ukulele, songs and high-spirited dances in which many of us took part as a healthy digestive to the superb meal. Speeches from the visitors and hosts took place throughout the meal, the orator frequently weeping as a gesture of appreciation of such generous hospitality.

Then would follow the afternoon session, which on three days appropriately consisted of a talk on food values and a cooking demonstration.

Sunday was the final feast of that first week, at the house of the A.D.C. and his wife, the Hon. Vaea and Tuputupu, where European custom of linen and cutlery mingled with the lavish, genial festivity of Tonga.

The average attendance was 35 at these five-day courses for women leaders from different areas.

Courses For Village Instructors

Tonga has much the same difficulty as other countries throughout the world regarding village work, namely, the problem of keeping up interest without extraneous leadership. The morning sessions were consequently directed towards programme planning related to village needs of each age group as well as simple methods of club organisation. Group discussion on the problems of village life and the opportunities for their solution through *Langa Fonua* produced the request that courses of instruction be held for sectional leaders from the different districts in subjects related to homecraft and health, particularly sewing and cooking, so that each village had its own trained local instructor who could take her part in enriching the programme of the branch meeting.

The afternoon classes consisted of sewing (patchwork and patterns) and cooking, including a brief introduction to food values and the simple home cooking of basic foods as well as invalid and weaning diets. It is for concentrated courses on these subjects that the request came from the delegates and was forwarded to the Central Committee. Lively songs opened and riotous games closed the daily sessions.

The leaders went away with a few new ideas for both the educational and recreational side of their village programme, but primarily with some realisation of what might be achieved in community education through *Langa Fonua*, especially if there were sufficient trained voluntary project leaders.

Variety Of Visual Aids

Visual aids on such topics as The Village Survey, The Woman in the Home, Building a Programme, Dangers

Miss June Summerton giving a cooking demonstration.

Midday feast between classes—Miss Stewart at end of table, Miss Summerton on her left. The delegates attending this course were all from other islands, and each day they were entertained by a different local village which provided three lavish meals, the midday one being a full feast.

of the Fly and Worm, Election of Office-bearers and Project Leaders, The Balanced Diet, all helped to focus attention, and dramatisation of a successful branch meeting summed up the week's suggestions. For each course we had a series of quite superb interpreters from among the delegates. During the last week several sessions were taken by Princess Mata'aho, who had helped us on arrival with valuable translations of cooking recipes.

As a means of demonstrating the importance of local resource personnel in village programmes, help was sought from the Medical Department for three of the morning sessions. The Public Health Inspector discussed with the group the findings of the recent village inspections and the means of coping with unsolved sanitation problems; the Sister Tutor from Hospital talked of infant care and home nursing, answering innumerable questions of every variety.

Water is one of Tonga's main needs, and WHO has been holding discussions with the Government on increasing the supply. A Filipino engineer, Mr. B. Adan, is working on a pilot scheme of sinking a well with village assistance as a preliminary to further development. He held a popular and prolonged session with each course explaining the technique and demonstrating how villagers could co-operate in the maintenance of a healthy supply of water.

Annual Show In October

The work of the *Langa Fonua* is gathered up annually in their October Show with its competitions in various types of Tongan crafts, sewing (including garment making), cookery, garden produce, flowers and poultry. It is the occasion of the presentation of shields for the best village and district. Local shows are also held.

This sense of responsibility for village improvement links the function of the *Langa Fonua* with that of the Women's Health Committees in the villages, voluntary bodies whose object is to improve the standard type of Tongan dwelling house by building sanitary bath houses, cooking and eating shelters and if possible tanks for water storage. Inspections are carried out regularly to enforce rules of cleanliness and to encourage vegetable and flower gardens.

Members of the Health Committee help with treatment of mothers and children for minor or skin ailments and give advice on infant and child care, including feeding. The Health Committee works in close touch with the visiting Child Welfare Nurse; scabies has been reduced almost to vanishing point.

Extensive Child Welfare Services

Child welfare has an important place in the Government programme. A beautifully equipped and expensive new mobile Child Care Clinic with its enthusiastic staff of one New Zealand Plunket-trained general and maternity nurse with one or two Tongan student nurses visits every village in Tongatapu every fortnight for preventive care including weighing, dieting and treatment of minor ailments as well as antenatal cases. All pre-school children are thus under regular observation.

The driver is an integral part of the team, taking his share in dealing out both liquid foods and advice or acting as interpreter.

Out of 111 babies examined in one day recently only two had signs of scabies. Yaws seems to have vanished.

A main concern is to persuade Tongan mothers to keep up breast feeding and to teach them how to prepare supplementary foods for the weaning process; it is conjectured that the decrease in the mother's diet of healthy native foods in favour of inferior imported food, such as white bread, has weakened lactation.

For the outlying islands there are occasional visits by the Child Welfare Nurse as well as the services of the A.M.O.; Ha'apai and Vava'u each has a Tongan-trained nurse who reports to the Child Welfare Nurse.

Church The Pivot Of Village Life

The Church has done incalculable service in Tonga and still remains the pivot of village life.

With the inspiring leadership of the Queen, the Royal Family and the Chiefly administrators with their fine standards of propriety and dignity, the Kingdom of Tonga pursues its life of dedication to the welfare of its people, to the true husbandry of its land, and to the character training of its rising generation.

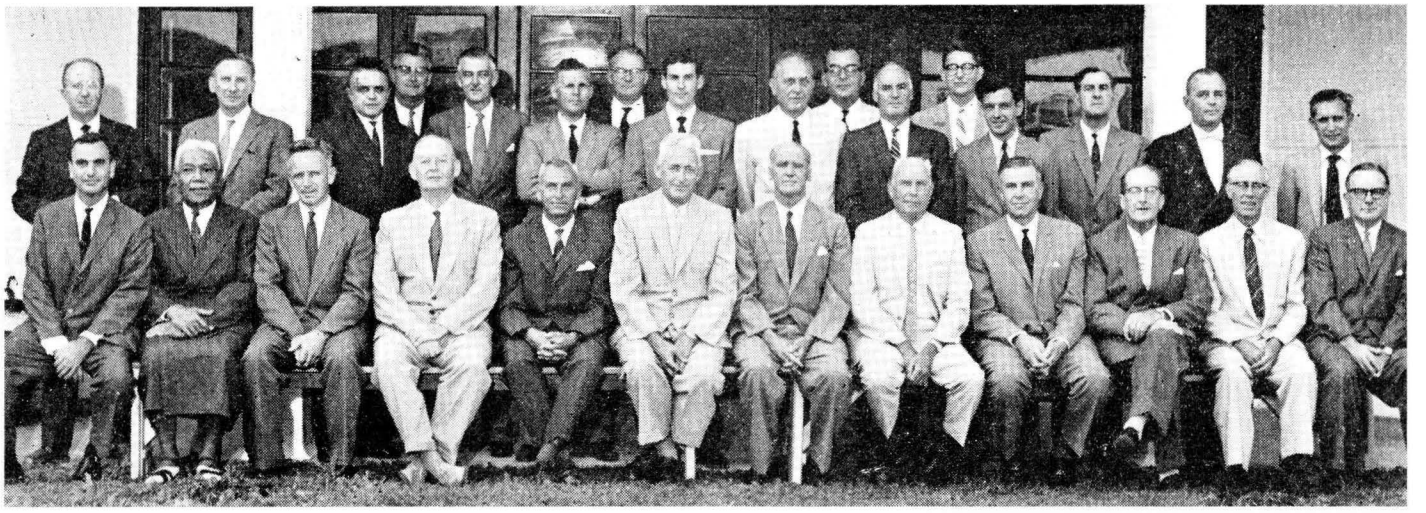
In this gay, trustworthy, generous and hospitable community one finds that harmony and gracious living so lacking in a world grown weary through selfishness, greedy ambition and disillusionment.

New Crops In Fiji's Rewa Valley

Nearly 7,000 acres of land in the Rewa Valley area of Viti Levu, Fiji, have been planted with new crops by farmers forced to switch from sugar-cane by the closing of the Nausori sugar mill a year ago. Over 5,500 acres are under rice, while other crops being grown include bananas, coffee, coconuts, maize, peanuts, tapioca, taro, kumera, watermelon, ginger, and a variety of vegetables.

To stimulate the planned development of the area the District Administration and Department of Agriculture have encouraged the farmers to set up a number of local development committees, and generally to take an active part in what is really a self-help scheme.

Demonstration farms have been set up so that farmers might see for themselves what can be grown. The farmer provides the labour and the Department of Agriculture helps by supplying material and fertilizers and advising on the best methods of cultivation. Advice is also given on such matters as soil cultivation, weed and pest control, and the use of fertilizers. As well, agricultural equipment is loaned to farmers who are also helped to find markets for their produce.



Commissioners, advisers, and principal officers of the Secretariat who attended the twenty-first session. Left to right, front row: Dr. A. Spoehr, U.S.A.; Hon. Tualaulelei M., N.Z.; Mr. J. M. McEwen, N.Z.; Sir John Gutch, U.K.; Mr. H. Nettre, France; Mr. T. R. Smith (Secretary-General); Mr. Dudley McCarthy, Australia; Dean Knowles A. Ryerson, U.S.A.; Mr. K. E. Breslau, Netherlands; Mr. C. G. R. McKay, N.Z.; Mr. C. T. Moodie, Australia; Mr. R. C. Wheeler, Australia. Middle Row: Mr. J. Bach, France; Dr. T. K. Abbott (Executive Officer for Health); Mr. R. Maylie, France; Mr. T. R. Cowell, U.K.; Mr. J. S. Rennie, U.K.; Mr. T. F. Hartnett, Australia; Dr. A. S. Osborne, U.S.A.; Mr. F. L. Spalding, U.S.A.; Mr. K. R. Douglas-Scott, Australia; Dr. Richard Seddon (Executive Officer for Social Development); Dr. A. Loosjes, Netherlands; Mr. W. L. Conroy, Australia. Back Row: Mr. Faure, France; Mr. D. Ernst, U.S.A.; Dr. Jacques Barrau (Executive Officer for Economic Development); Mr. A. Steensma, Netherlands.

Commission Reviews Work Programme

At its twenty-first session held in Noumea from October 13-25 the South Pacific Commission reviewed progress made in its work for Pacific island peoples and finalized plans for its continuance in 1961.

SPECIALIST officers of the South Pacific Commission are—or shortly will be—conducting training courses for Pacific islanders in boatbuilding, literature production, health education, fisheries, and women's activities. Courses now in progress were reviewed and plans for others were finalized at the Commission's twenty-first session held at its headquarters in Nouméa from October 13-25.

The Commission also decided to hold technical meetings in 1961 to discuss the further development in the Pacific of agricultural extension services, co-operatives, and tropical crops, and as well finalized plans for holding the fifth South Pacific Conference of island peoples in American Samoa in 1962.

1961 Work Programme Approved

Representatives from the Commission's six member nations, Australia, France, the Netherlands, New Zealand, United Kingdom and the United States of America, attended the latest session, the Chairman being Mr. Dudley McCarthy, senior commissioner for Australia.

The meeting reviewed progress made by the Commission in all its fields of work during the past year, and approved plans for its 1961 programme.

Coconut Industry

The Commission approved a further grant of £2,000 for 1961 to assist the coconut research station that has been set up on Rangiroa, in the Tuamotu Group, to find practical ways of improving coconut production on the low islands of the Pacific.

The Commission will also assist four coconut experts working in the Pacific to attend the symposium on the improvement of tropical crops being convened by its executive officer for economic development, Dr. Jacques Barrau. The meeting will take place within the framework of the Tenth Pacific Science Congress to be held in Honolulu, Hawaii, in August/September, 1961.

Health Education

The Commission noted with pleasure the steadily-increasing requests from territories for the services of its health education officer, Miss Leonie J. Martin. Since she took up appointment in May, 1959, she has assisted to plan and run training courses in health education for islands personnel in the New Hebrides, Cook Islands, American Samoa, British Solomon Islands and the United States Trust Territory of the Pacific Islands. The appointment of a second health education officer to assist in this rapidly-growing project was approved.

The Commission will hold a meeting at its Nouméa headquarters of directors of territorial health services. While its main purpose will be to discuss the development of health education activities in the Pacific, the agenda will also include other subjects of interest to health services such as maternal and child health, and training of health workers. The meeting will advise on a proposal that the Commission should hold a second regional training course in health education in 1962.

Fisheries And Boatbuilding

A fisheries training centre for Pacific islanders will be conducted for two months in 1961 at Tulagi in the British Solomon Islands by the Commission with the co-operation of the Food and Agricultural Organization and the Protectorate Government. The Centre will provide training in fishing methods, fish preservation, care of nets, and the use and maintenance of small powered vessels.

The fisheries surveys of the Pacific recommended by the Fisheries Conference held at Commission headquarters in 1952 will be completed next year, and a technical meeting will be held early in 1962, to consider a further programme.

The Commission reviewed progress being made at its two-year course in boat-building, repairs and maintenance, opened last August at Auki in the British Solomon Islands. Twenty-four

(Continued on page 53)

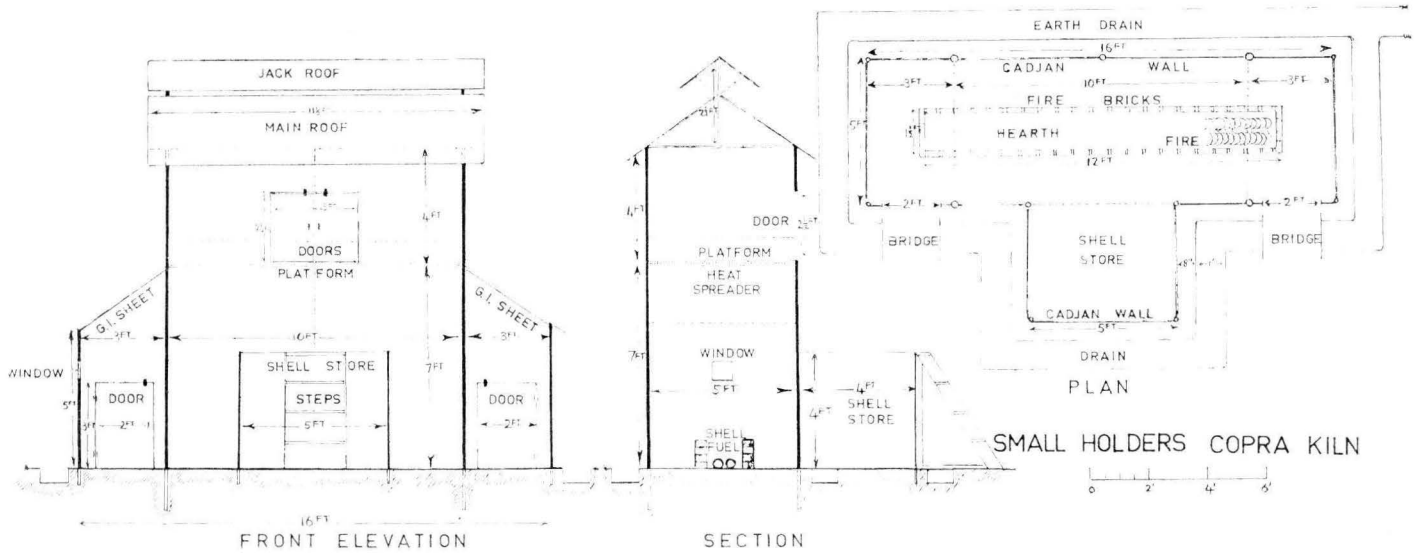
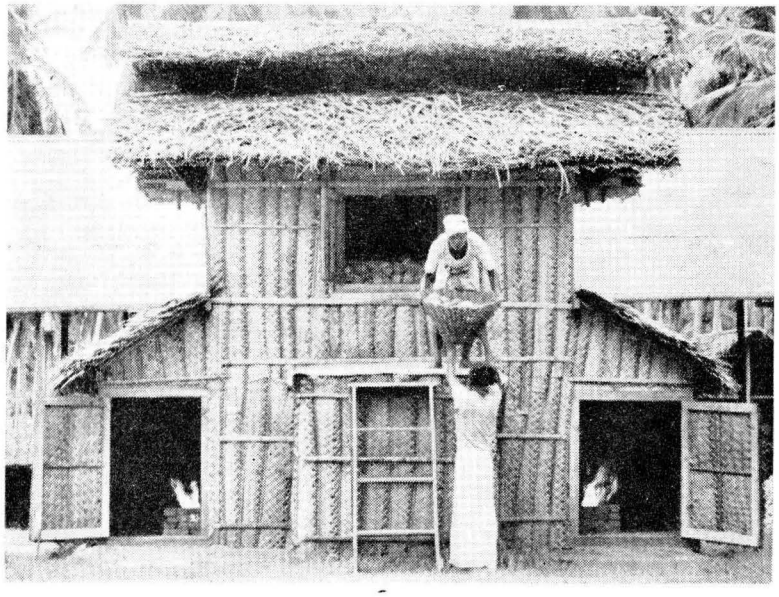


Fig. 1. Front elevation, section, and plan of the drier. Fig. 2 (below). A general view of the completed kiln being charged with nuts. Both ends of the hearth can be seen through the open doors.

Low-Cost Copra Kiln for the Smallholder



INTRODUCTORY NOTE

The construction and operation of this small Ceylon-type copra drier were originally described in a two-part article entitled "Copra Production by the Smallholder" that appeared in WORLD CROPS *for November and December 1956. The author was Mr. F. C. Cooke, who had developed the design in Malaya and who later erected a demonstration model at the Coconut Research Institute of Ceylon, of which he was then Director.*

In the Pacific, the design filled a widespread need among many smaller growers for a simple, low-cost copra drier that could be built of local materials, and which would produce high-quality copra. Many of these kilns are today being successfully operated throughout the region, notably in Western Samoa, the Cook Islands, Niue, and the British Solomon Islands.

The BULLETIN *is indebted to Mr. Cooke, who is now Editor of* WORLD CROPS, *for his kind permission to reproduce from his original article the extracts below covering the construction and operation of the drier, and also for the loan of the supporting illustrations.*

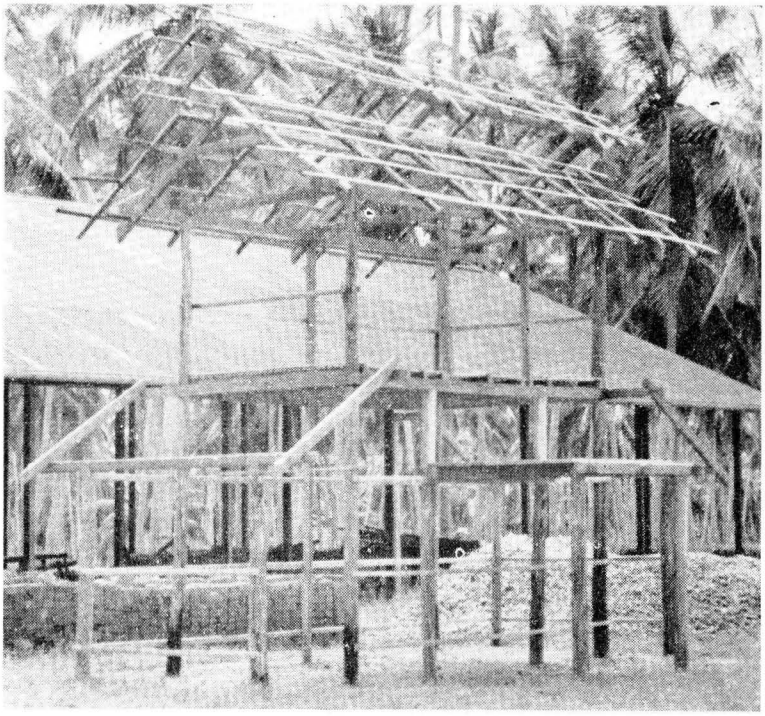
THE simple small copra kiln described below is primarily designed for use in smallholdings of twenty acres or under. It can also be used for decentralised production on small estates. This will save the cost of carting whole nuts to the central copra yard, and the coconut husks and coconut milk are left in the field and returned to the soil.

The smallholder's copra kiln is, in fact, a Ceylon-type drier, considerably reduced in size and with improvements in design and operation to ensure that a better quality of copra is produced in only 2½ days, or half the normal time.

Fig. 1 gives the front elevation, section and plan. The completed kiln is shown in Fig. 2. The hearth with its chain of burning coconut shells is shown in Fig. 4. It consists of two parallel lines of loose bricks with gaps to allow air to reach the fire. A heat spreader consisting of a piece of flat galvanised sheet 20″ wide and 10′ long is nailed to the underside of the rafters to prevent overheating the copra immediately over the fire. The sloping cadjan roofs of the two wings are also protected from sparks by two flat sheets of galvanised iron on the underside.

The kiln is a simple structure made of cadjans (attaps or woven leaves), hardwood poles and light rafters. It has been so designed that the charge of 1,500 split coconuts is uniformly and continuously warm, and as a result dry copra can be obtained in only 2½ days without forcing the drying and without producing any scorched or case-hardened pieces.

Its design is based on the fact that the fire at the end of a chain of burning coconut shells produces an inverted cone of heat. When the copra platform is 7′



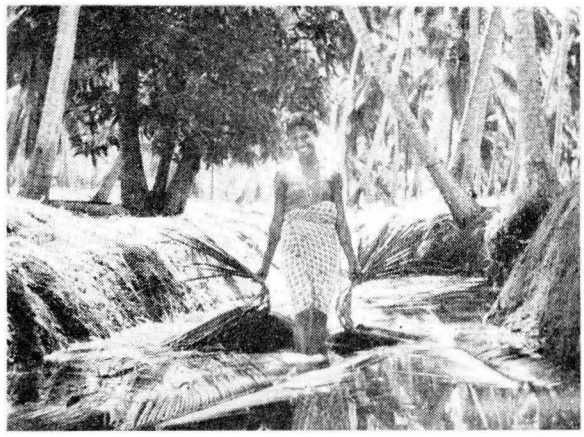


Fig. 2a (above). Framework of the kiln.

Fig. 3 (right). After soaking the coconut fronds overnight (top), the leaflets are stripped off with a knife (centre), and are then plaited into panels (bottom).

above the fire, the circle of heat is 5′ in diameter; this fixes the width of the copra platform or grille. The length of the copra platform is only 10′, because copra begins to deteriorate through the action of decomposing bacteria if heat does not reach it within four hours, which is the time taken for the fire point to travel from one end to the other.

Cadjan walls and roof are much better than corrugated iron or brickwork, because air can filter evenly into the firepit and there is no wind disturbance even on stormy nights. Further, the kiln interior remains warm even on cold, wet nights and there is none of the moisture condensation and chilling and convection current disturbances that occur in the large Ceylon-type smoke driers during stormy weather.

Although cadjans or plaited leaves are very inflammable materials of construction, there is no risk of fire at all, providing the kiln is properly operated and no attempt is made to force the drying by providing additional or larger fires. On no account should firewood or husks be used as fuel, as this produces too much smoke.

Making The Cadjans (Attaps)

The cadjans or plaited coconut leaves are made from the fully-matured or necrosed brown fronds of the palm. The woody butt-ends are first cut off with a single stroke of a parang, machete, or cleaver, and these pieces are used as domestic fuel. The remaining portions of the fronds, consisting of the leaflets and the midrib, are taken to a waterhole, backwater or shallow stream which has been dammed. About 1,000 leaves may be left to soak overnight (Fig. 3).

Early the following day the softened wet leaves are removed from the water and the fronds are bisected down the midrib by means of a knife or billhook mounted on a handle 3′ long. The operator takes hold of the leaflets with both hands, presses the centre of the midrib against the sharp cutting edge, steadies the knife with her left foot and pulls the leaf towards her, thereby splitting the leaf into two halves. She can bisect 1,000 leaves a day.

Plaiting the halved leaves is naturally a much slower operation. The girls usually work in company, squatting on the ground and conversing happily. The leaflets are twisted and criss-crossed, starting from the base, until a solid panel of plaited cadjans is produced. The finished cadjans are laid flat to dry in the sun. Each girl can plait about 50 split leaves to produce 100 cadjans per day.

These may be stacked in the shade of a palm and kept for several months till required, or they may be used immediately. The life of these woven cadjans is not very long. The cadjans used for thatching the roof may need to be replaced after a year, but those used for the walls of the kiln will last about two years, providing they are treated against

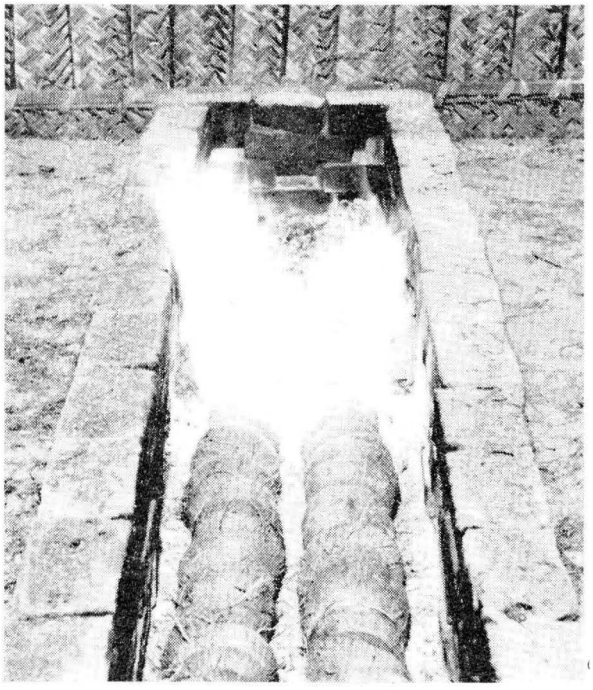


Fig. 4. The smokeless shell fire as seen through the observation window. The shells used as fuel should be from mature nuts—hard, dry and free from husk.

termites with aldrin or chloradane or proprietary insecticides like "Aldren" or "Intox 8" are sprayed against the sides of the kiln.

* * *

[In the second and concluding instalment of his article the author describes the processes of collecting, husking and splitting of nuts as carried out in Ceylon. He then stresses the importance of the prompt drying of opened nuts. Under conditions of humidity and temperature common in the tropics, decomposition of the freshly-exposed coconut meat due to bacterial attack sets in if more than four hours elapse between the splitting of the nuts and the applying of heat. Also, husked but unopened nuts must be covered from the sun to prevent spontaneous bursting and subsequent spoilage. If the weather permits, the author recommends about eight hours of sun drying as a preliminary to kiln drying. The copra develops a smooth, hard surface to which pieces of husk, dirt and smoke do not adhere, and as well about half the moisture is removed, thus saving fuel. The copra must be protected against rain, however, or quality will suffer seriously. The author then discusses correct loading and operation of the kiln, as follows:]

LIST OF MATERIALS

Hardwood poles, 13″ girth	103′
Coconut rafters, rough cut	40′
Areca slats, 1″ x ½″	978′
Wooden planks, various	67½ sq. ft.
Small rafters, 7″ circum.	96′
Door frames	3
Ladder or steps, complete.	
Cadjans or attaps	325 double plaits
Coir yarn	50 skeins
Galvanised iron sheets	4
Galvanised iron wire	2 lb.
Wire nails	2 lb.
Door hinges	8
Solignum	1 gal.
Bricks	80
Cement	20 lb.

Correct Load

The load which the kiln can take will naturally depend on the size of the nuts. The kiln must not be overloaded or the free movement up through the copra will be impeded and scorched copra will be produced. An overloaded kiln may even catch fire, irrespective of whether the kiln is made of cadjan or of brick, because the upward movement of the rising hot air is impeded.

The correct load is given by the formula:

$$\frac{N}{40} \text{ per sq. ft. of platform}$$

Where N = the number of nuts per *candy* of 560 lb. (Ceylon)

$$\text{or } \frac{n}{10} \text{ per sq. ft.}$$

Where n = the number of nuts per *picul* of 133 lbs. (Malaya)

Thus, where the out-turn or conversion rate is 1,000 nuts per *candy*, or 250 nuts per *picul*, the correct load will be 25 nuts per sq. ft., or 1,500 nuts per kiln. Where the nuts are very small, the load may be increased to 3,000 nuts or more, according to the above formula.

Kiln Operation

It is important that the shells used as fuel should be from mature nuts—hard, dry and free from husk. They should be graded for size to prevent interlocking, because if a small shell fills the cavity of a large shell its ignition will be retarded and there will be a period of smouldering and smoking. The fire chains of large shells should be burnt first and the smaller shells can be used when the copra is nearly dry. The fire chains should be loose to allow free ventilation and easy ignition.

In order to avoid excessive production of smoke when the chain is lighted, it is desirable to ignite some broken shells on a shovel outside the kiln and bring them in when they are well alight. Thereafter all the kiln doors should be kept closed to prevent disturbance of the fires, the progress of which can be seen by looking through an observation window set in the kajang walls.

It has been found that 1,500 large nuts, which have been previously sun-dried, can be dried with eight fires, each of four hours' duration, allowing two hours between fires for the ashes to cool. If this is not done, the next charge of shells may all be ignited by the concealed glowing embers of the previous fire. In wet weather, when sun-drying is not possible, 12 fires will be required.

Fuel consumption with sun-drying, 60% of the available shells.

Without sun-drying, 90% of the available shells.

Even whiter copra, i.e. "edible white" grade, can be obtained by burning a 1″ layer of well-burnt charcoal in the earth. A bed of charcoal, 12′ long, takes 15 hours to burn if lighted at one end. This makes for simpler operation, but the supply of charcoal will soon run out, as the fuel consumption is equivalent to 160% of the supply of shells. This means that charcoal has to be bought.

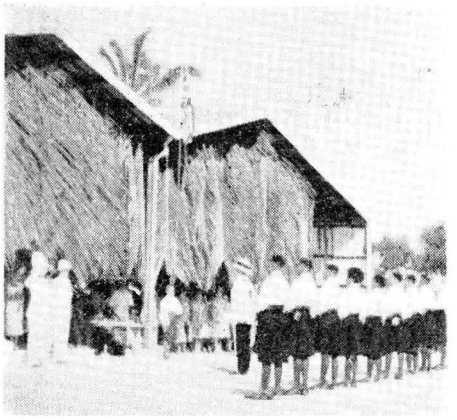
Fiji Beef Cattle Scheme Promising

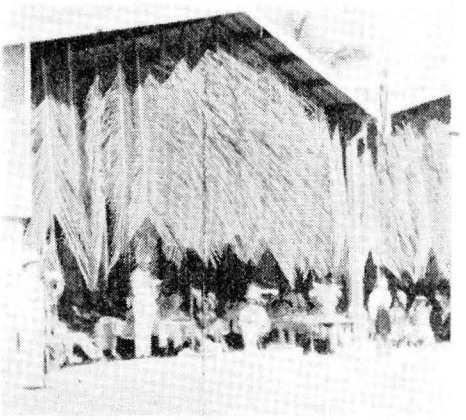
Attempts to build up a beef industry in Fiji are beginning to show promising results. Good quality beef has been produced from the Santa Gertrudis cattle which were introduced into Fiji by the Agricultural Department.

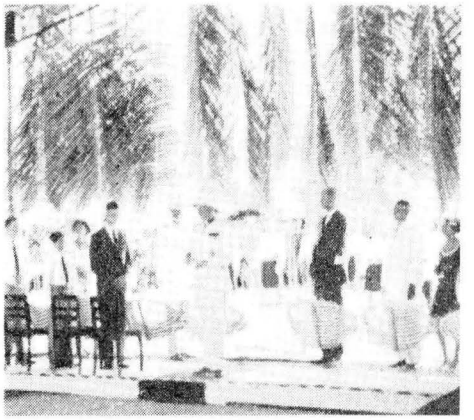
The first of the cattle—four pure-bred bulls—were imported from Australia in 1954 with a view to up-grading the local cattle to earlier maturity and heavier weights. Later, ten pure-bred heifers were imported from the United States.

Cross-breeding with local cattle has been highly successful. The first of the cross-bred animals were killed recently, and the quality of the meat was good.

Mr. J. D. Yelf, Senior Agricultural Officer in charge of Agricultural Stations, said recently that an increasing interest was being shown in Fiji in the raising of cattle—especially for beef. Inquiries about types of cattle to be used and methods of handling them had come from all sections of the community. Orders for both beef Zebu bulls and Santa Gertrudis bulls exceeded the numbers available from Government herds.







At the opening ceremony (l. to r.), His Excellency Sir John Gutch inspecting the guard of honour, addressing the gathering, and cutting the ribbon across the workshop entrance.

SPC Boat Building Trainees Making Excellent Progress

Excellent progress is being made by the trainees attending the Commission's boatbuilding Course now in progress at Auki, Malaita, in the British Solomon Islands. The Course was officially opened on August 31 last by His Excellency Sir John Gutch, K.C.M.G., O.B.E., British High Commissioner for the Western Pacific. Shortly afterwards the keels of three 25′ fishing cutters were laid. Construction is now well advanced, the planking of all three craft being almost completed.

THERE are twenty-four trainees attending the Course from the six Pacific territories of Papua and New Guinea, British Solomon Islands, Netherlands New Guinea, Gilbert and Ellice Islands, New Hebrides and the United States Trust Territory.

During the Course, which will last two years, trainees will learn boatbuilding and repairs, and will be instructed in the installation and servicing of small diesel marine engines.

International Co-operative Effort

The Government of the British Solomon Islands, which is supplying the buildings, and the Bureau of Technical Assistance Operations of the United Nations, which is paying the instructor's salary and part fares of the trainees, are closely co-operating with the South Pacific Commission in running the Course. The Commission is providing machines, tools, timber and other materials for the boats being built, and is maintaining the trainees.

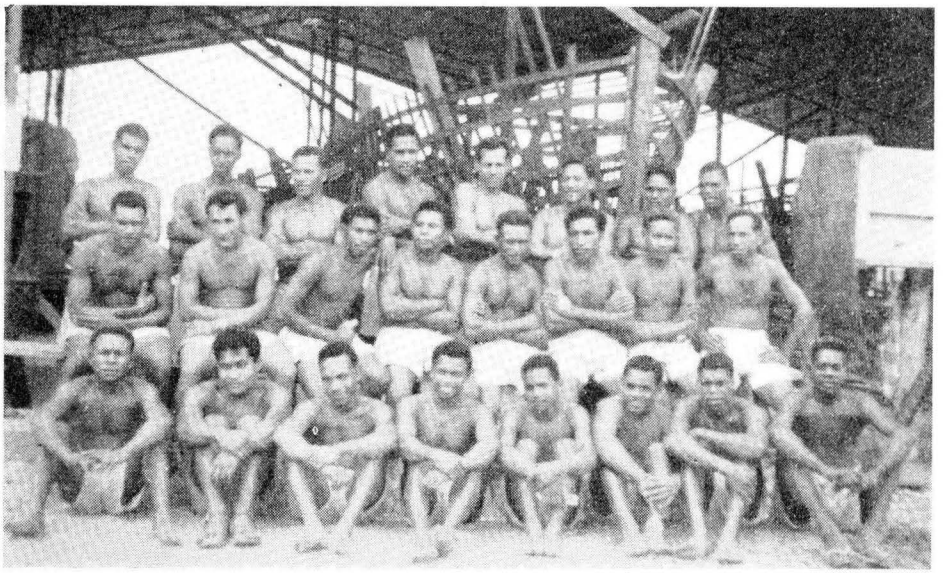
Mr. Cecil Fisher is Director/Instructor for the Course. Formerly with the Steamship Trading Company in Port Moresby, he taught boatbuilding to island apprentices for many years.

There are two main buildings, the workshop and the trainees' living quarters, the latter mainly comprising two dormitories, dining-recreation room, and kitchen. Both were specially erected for the Course.

The workshop, which is of tubular steel fabrication, is 75′ long by 80′ wide. It is divided into four sections. Two main sections, each 30′ wide, comprise the building berths.

On each side of these is a 10′ section. One houses the machinery, which comprises a 2′6″ rise-and-fall table circular saw, 2′ planer, 12″ jointer, and a bandsaw. All are electrically driven. There are also two engineers' vices in this section, one at each end.

The other 10′ section comprises office and store, 24 tool cupboards in two tiers



The twenty-four trainees attending the Course are from Papua & New Guinea, British Solomon Islands, Netherlands New Guinea, Gilbert & Ellice Islands, New Hebrides, and the United States Trust Territory of the Pacific Islands.

The workshop, which is of tubular steel fabrication, measures 75′ x 80′. The transoms can be seen of two of the three fishing cutters being built.

(one for each trainee), and timber racks, 7′ wide and 12′ high.

On each side of the two building berths a 2′ wide workbench runs the entire length. A 3′ passageway right across the centre of the building ensures easy access to any part of the workshop.

Power points for hand drilling machines, etc., are installed under the workbenches so that electric leads are never in the way. Neon lighting is used throughout the workshop, and is very effective.

Course First Proposed In 1957

Speaking at the official opening ceremony, His Excellency Sir John Gutch, K.C.M.G., O.B.E., British High Commissioner for the Western Pacific, said that the idea of the boatbuilding Course had been proposed and accepted in principle by the South Pacific Commission as long ago as 1957. The following year the Commission formally resolved that a regional training course in boatbuilding, repairs, and engine maintenance should be held in association with the Protectorate Government and a technical assistance agency. It was also then decided to aim at commencing the Course at Auki on Malaita sometime in 1960. Later the South Pacific Commission received a favourable response from the Bureau of Technical Assistance Operations of the United Nations to an application for assistance in the project.

Sir John said that he thought the concept of the Course owed much to the initiative of Mr. H. van Pel, the Commission's Fisheries Officer, who had noted the widespread need for improved fishing boats throughout the South Pacific. Sir John further considered that the project also owed much to Mr. Arthur Swinfield, whose long and wide experience in this field was well known and who had previously conducted a school for training Papuans in boatbuilding on Kwato Island. At the South Pacific Fisheries Course held in Nouméa in 1956/57, lectures had been given in boatbuilding and marine engines by Mr. Swinfield. This had stimulated great interest among the Pacific Islanders attending the Course.

Speaking of the fact that the Course was being held in the British Solomons, Sir John said that the Protectorate was particularly glad to offer itself as the host territory for the project, and warmly welcomed the other Pacific Islanders. Sir John continued: "Auki was chosen as the site for the Course mainly because of the traditional skill and enterprise of the Langalanga people in boatbuilding, and I have no doubt that the presence of the Course here will encourage them to perfect and extend their craftsmanship. One hopes, too, that the planting of the Course in an area where boatbuilding is already part of the people's way of life may ensure conditions in which it will flourish and prosper."

"As with other South Pacific projects, much assistance and effort have been drawn from many sources to bring this boatbuilding Course into being", Sir John continued. "The Protectorate has provided the buildings with the help of Colonial Development and Welfare funds contributed by the people of the United Kingdom. The South Pacific Commission—itself comprising six member nations—has provided the machinery and tools. From the United Nations have come funds to provide the instructor and part fares for the trainees. Lastly, there is that most important element, the trainees themselves, drawn from six different Pacific territories. The project

(continued on page 59)

SPC To Hold Women's Interests Seminar This Year

Some forty women representatives of territories throughout the Pacific are expected to attend a women's interests seminar to be held in Western Samoa during August/September this year. The Seminar will train participants in techniques of community education and group leadership, and will help them to improve existing and plan new courses and programmes for women's organizations in the Pacific.

The Food and Agriculture Organization and the United Nations Educational, Scientific and Cultural Organization will assist the Commission to conduct the Seminar. United Church Women of the United States, which in 1958 made a grant of $30,000 towards the Commission's women's interests project in the Pacific, is also actively supporting the meeting.

The Seminar will be directed by the Commission's executive officer for social development, Dr. Richard Seddon. He will be assisted by Miss Marjorie Stewart, who, since her appointment two years ago as SPC women's interests officer, has been largely working in Pacific territories encouraging interest in women's organized activities.

Record Year For Co-operatives In Papua And New Guinea

An all-time record in trading by native co-operative organizations throughout Papua and New Guinea was established for the year ending March 31 last, when the total turnover reached £1,162,451. While due in part to high copra prices, there was also an increase of 15.28% in the volume of copra handled as compared with the previous year (from 4,920 tons to 5,672 tons).

There are at present 232 co-operative organizations in the territory, comprising 218 co-operative societies, 13 associations of native societies, and one federation of native associations (with headquarters at Port Moresby).

Associations of native societies act as wholesale marketing and purchasing agencies for co-operative societies, while the Federation of Native Associations acts as a bulk importer for member associations and carries out agency work on behalf of its members such as that involved in the purchase of ships and vehicles.

The total membership of co-operative organizations in Papua and New Guinea is 71,651, the total capital investment £756,804. Fixed assets include 17 coastal vessels ranging from 48′ craft to 28′ workboats, 16 tractors, 12 trucks, buildings and general equipment.

Above: Dressers, nurses and staff who attended the Course. The British Medical Officer, Dr. H. R. Simons, is fifth from left, second row. Right: "Role-playing" in action. This group is demonstrating to trainees how a dresser might help when he visits a school, by asking the teacher if he may talk to the class. Here "good nutrition" is the subject. The kind of difficulties a dresser might meet in such a situation were acted out by the group.

Health Education in the New Hebrides

A four-week refresher course for twenty-seven medical dressers and nurses was held at Port Vila in the New Hebrides last September. In this article the author—an Assistant Medical Officer who attended—reports on the course, and compares it with a similar one held the year before.

By STANLEY REVEAG

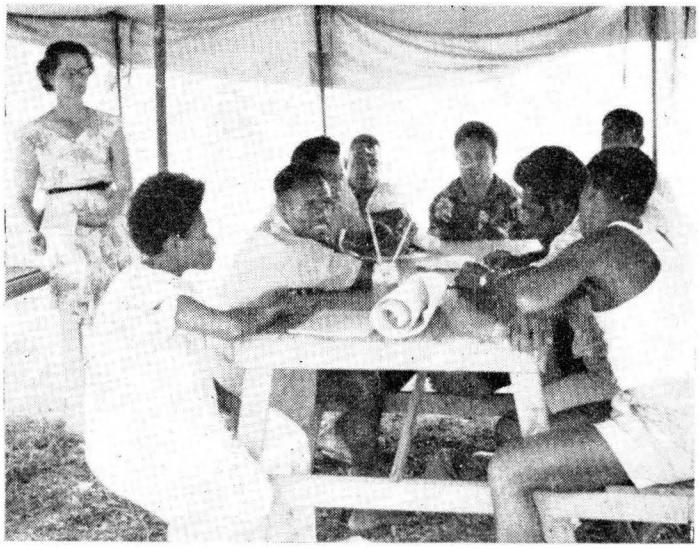
I WORK as an Assistant Medical Officer in the Banks and Torres Groups of the New Hebrides, combining public health duties with the running of a clinic. My work lies mainly in teaching public health, although my clinic has thirty beds. I try and travel as often as possible (my wife, a trained nurse, looks after the clinic in my absence).

When I attended the health education course sponsored jointly by the World Health Organization and the South Pacific Commission in Nouméa in 1957 my interest was stimulated in this work, and I have helped with the courses run by the British Administration here (with South Pacific Commission aid) in 1959 and 1960.

First Course In 1959

In 1959 we had the first dresser re-

Below: A.M.O. Joseph Marsau, with four members of the Course in their new uniforms, ready to set out on a field trip. The UNICEF yaws campaign Landrover was lent for the training Course. Right: One of the discussion groups. Sister E. Pyatt of the Godden Memorial Hospital at Lolowai, on Aoba, is standing by in case her help is needed. (She was one of the Sisters from the missions helping with the Course.)



Above: Course members inspect a family water drum for mosquito breeding during one of the field trips to villages on Efate Island. Right: Some of the Course members in the new uniform being issued to dressers by the British Administration.

fresher training course. It was held in Port Vila from June 8 to July 7, and was attended by twenty-five dressers and nurses.

This course was designed to assist the participants by revising some of their clinical work, and at the same time to help them learn how to teach the people of their villages about health and sickness.

As well as being taught the basic facts they learned how to make and use teaching aids, and how to work with other village leaders.

Second Course Held Last September

The 1960 course was held from September 1 to 30, also in Port Vila. It was attended by twenty-seven dressers and nurses who came from all over the New Hebrides, from the Torres Group in the north to Aneityum in the south.

This course was very similar to the first one, and we used the same notes with some more added, but the experience of the previous year helped us to make a few important changes.

We made a number of field visits to let the dressers and nurses see the village conditions we had talked about in class. It was good to be able to visit some villages where we found that the dresser had attended the first course, and could tell us how he had used what he had learned to help his village.

This second course was run by Dr. H. R. Simons, the British Medical Officer, again helped by sisters from the missions.

A discussion group operating with its own leader, considering how health may be taught in the villages. Groups could (and did) call on staff for help when they needed it, but were encouraged to work out their own problems when they could, since they will have to work on their own for the most part when they return to their villages.

We had a twelve-day visit from Miss Leonie Martin, the South Pacific Commission's health education officer, who was very interested to see how we were getting on. She talked to us about writing reports. We also had a short visit from Dr. W. Norman-Taylor, the Commission's public health officer.

One of the most important things we did this time was to give more responsibility to the dressers and nurses themselves. After each lecture we would work in three groups, to discuss what we had learnt and help each other to think out how we could teach these things in our villages.

At first the sisters helped with the groups, as well as I and two other New Hebrideans. However, each group also had one of its own members as a leader, who gradually learned how to take over the group and run it. This was an important experience for the course participants.

Dressers and nurses here as well as everywhere else in the Pacific are important people in their villages, and their villagers always look upon them as their healers as well as their leaders.

These courses are a means of achieving and expanding the rapid development of medical work in this country.

SPC Officer Acts As Suva Medical School Examiner

The Commission's public health officer, Dr. W. Norman-Taylor, recently visited Fiji at the invitation of the Inspector-General of the South Pacific Health Service to act as one of the external examiners in the final-year examinations of the Central Medical School, Fiji. The School is giving increased attention to public health subjects in its curriculum, and this is the first time that an external examiner in this subject has been appointed.

While in Fiji, Dr. Norman-Taylor was given an opportunity of seeing Assistant Medical Officers at work, both in Suva Hospital and out on their own in the districts. He was very impressed by the high degree of ability, devotion to duty and sense of responsibility they showed. Dr. Norman-Taylor commented: "It was also gratifying to note that more attention is being paid to the practice of public health, especially in rural areas. Many of the cases admitted to hospital are suffering from diseases that they need not have caught if proper attention had been paid to hygiene in their home surroundings. By means of health education and close supervision of the people, the district medical officers of the future will, it is hoped, be able to prevent a large proportion of these tragedies."

Before going to Fiji, Dr. Norman-Taylor paid a visit to American Samoa and Western Samoa, where public health matters and the work of medical practitioners were discussed.

After all the annual meetings had been completed a short refresher course for secretaries was held at Tavua. Assistant Co-operatives Inspector Sakanasa explains the correct method of completing a form for insurance of cash in transit between the Island and the bank in Suva.

Bonus distribution by the South Seas Society. A member signs for the amount paid to him from the cash on the table. Treasurer (far right) counts cash, which is checked by the Chairman (centre) and paid out. Assistant Co-operatives Inspector Sakanasa (left) supervises the signing.

KORO: Fiji Island Of Progress

During a recent visit to the Fijian island of Koro, the Commission co-operatives officer was greatly impressed by the development there of co-operatives, and of aided self-help activities generally. He records his impressions below.

By R. H. BOYAN

EIGHTY miles to the north-east of Suva lies the island of Koro. Some two and a half thousand people live on its forty square miles.

A visit to Koro is stimulating. One sees and meets a people conscious of a changing world and the need to adapt to it, and more importantly, demonstrating a willingness and ability to meet the challenge.

The Koro people have quite a good standard of living. This cannot be indicated by figures of cash income from agricultural products because to a large extent the people are self-sufficient. Dalo and yams remain the staple diet. Bread is popular but as a supplement to, and not a replacement of, the home-grown root crops. Fish from the surrounding waters, pigs and a few cattle help provide protein. Supplementary home-grown foods are sweet potato (kumala), tapioca (cassava), bananas, greens, oranges and mandarins of good quality.

A possible future addition to the diet is peanuts, which some of the people are trying out as a cash crop. An important item of local production is yaqona (kava), large quantities of which are consumed in ceremonies and on social occasions.

Increased production to meet the problem of increasing population and provide a higher standard of living requires both more creative work and more efficient work. A willingness in Koro to work harder, creatively, is demonstrated by the planting of new coconut palms, experiments with peanuts and an interest in schemes for cocoa planting.

The willingness to adopt methods and means to make work more efficient is shown by the purchase by the people of Nacamaki village of a power mower to cut the grass in the large village area. This is the responsibility of one man.

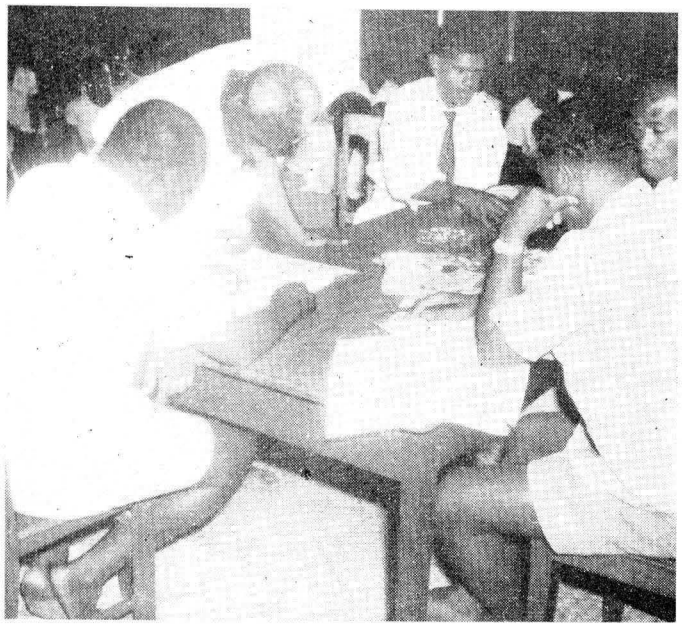
Willingness to adopt methods which will give increased income through shortening the route between producer and consumer is shown by the formation of co-operative organisations. On the island are 10 registered co-operative societies of limited liability and 11 unregistered co-operative groups, 21 in all with a total of 674 members. It is hoped that amalgamation where there is more than one group in a village will reduce this number eventually to 15. Unregistered groups are a stage towards a registered society.

Unfortunately, when co-operative groups were started no prohibition on the granting of credit was enforced. This threatened their existence, and the Registrar of Co-operative Societies stipulated that unless credit was eliminated, registration as corporate bodies would not be granted and assistance by way of training of officers and managers and audit and supervision would be withdrawn. As a result, debts have been nearly all liquidated, a prohibition on new credit is observed and only a few groups remain unregistered.

Co-operatives Are Multi-Purpose

The co-operatives are multi-purpose in character, carrying out the marketing of copra and yaqona, the operation of consumer stores and of bakeries and—a recent addition—the provision of savings facilities.

The annual accounts for the year ended June 30, 1960, showed that the combined total of copra sold in Suva by all societies was 473 tons valued at £31,965 and the combined value of yaqona was £7,493. Producers receive an advance on delivery of green copra to the co-operative vatas, or drying racks, and a final payment after all expenses for the



A member of the South Seas Society (right), having deposited some of his bonus in his Savings Pass Book, waits while Assistant Co-operatives Inspector Sakanasa (seated, left) makes the entry in the Register of Deposits. Other members await their turn.

year have been met. Efficient management keeps these expenses low.

In retailing, the members have resisted the temptation to cut prices to the level of buying price plus estimated expenses, and have followed the Rochdale principle of selling at local market prices. This allowed them after the end of the financial year to place a tidy sum in the Reserve Fund, and to distribute surpluses after all expenses had been met to all members in proportion to their purchases from the store. However, before paying the store and bakery rebates and the final payment for copra and yaqona, all members were paid 5 per cent interest on share capital.

The crediting of some of the surpluses to the Reserve Fund is accompanied by the opening of Reserve Fund Investment accounts with one of the Suva banks.

Annual accounts for the year ended June 30, 1960, were presented at a series of annual meetings held in July-August, 1960. All meetings were attended by Mr. R. H. Phillips, Chief Inspector of the Co-operative Department, and Sakenasa, Assistant Co-operative Inspector. Visitors for part of the period were Mr. D. Murray, Assistant Registrar, Cook Islands, and Mr. R. H. Boyan, Co-operatives Officer, South Pacific Commission.

Distributions of rebates and final payments immediately followed the annual meetings. At this time the thrift activities of the societies were commenced. Passbooks which had been specially printed for the purpose in advance were used to open approximately 1,000 accounts, and the initial deposits made—mainly from bonus payments—totalled approximately £2500. These accounts will help prevent some embarrassment experienced in former years in meeting provincial taxes and will be a source of funds for future development projects if members will resist any urge to divert the savings to unproductive uses.

New Projects And Activities

Bakeries are a recent illustration of a new project, and bread of excellent quality is coming from them. However, this is capital expenditure on the consumption side, and it is hoped that future capital expenditure will be more and more diverted to activities which will assist to achieve increased production or better-quality produce.

Hot-air copra driers provide an example of new projects in which interest is being shown.

In the meantime much capital and effort is being expended in the improvement of village housing. Funds from this come from some personal savings, but principally out of the compulsory cess of £10 per ton deducted from copra proceeds and held by the Fiji Development Board for approved capital purposes.

Most of the new houses have been built of timber with iron roofs, but now there is a trend towards concrete block construction.

Coming to the fore as a stimulant to improve living conditions are the Women's Clubs. Seventeen women from Koro attended the Leaders' Training Course held at Nasavusavu in May by Miss Marjorie Stewart and Miss Ruth Robertson, Women's Interests Officers of the South Pacific Commission and Fiji Government respectively. Four attended a more advanced course in Suva.

In one village a women's group took advantage of the new thrift activities of the co-operatives to start their own accounts. In another direction, churchwomen at Tuatua plan to instal a small lighting plant in their church.

Another proposed venture is the construction of a telephone line around the perimeter of the island, a distance of something like 25 miles.

Another aspect of the Koro economy is the export of bananas. Restriction of overseas markets and difficulties of transporting fruit to Suva for shipment has prevented full use of the potential. However, an allocation of 600 cases was given Koro for shipment to New Zealand per the M.V. TOFUA in July, 1960. This meant £315 income for the producers.

Koro is an excellent example of aided self-help and mutual help. An indication of the self-help attitude is the inclusion in the expenses of the co-operatives of an item for the Audit and Supervision Fund. This permits of the employment of a trained Koro man as a supervisor; his job is to conduct a continuous audit of all Koro societies. He works under instruction of the Registrar of Co-operative Societies, but is not a government employee, and all his salary and expenses are met from the Audit and Supervision Fund. The work of the supervisor has greatly relieved the pressure on the regular officers of the Department, who now have more time to devote to further development.

A Bright Future

Signs for the future welfare of the people of Koro are good. They have suitable climate and soil. They are prepared to work, and the sound operation of their co-operatives is an indication of both their ambition and ability. They are willing to try out new sources of income.

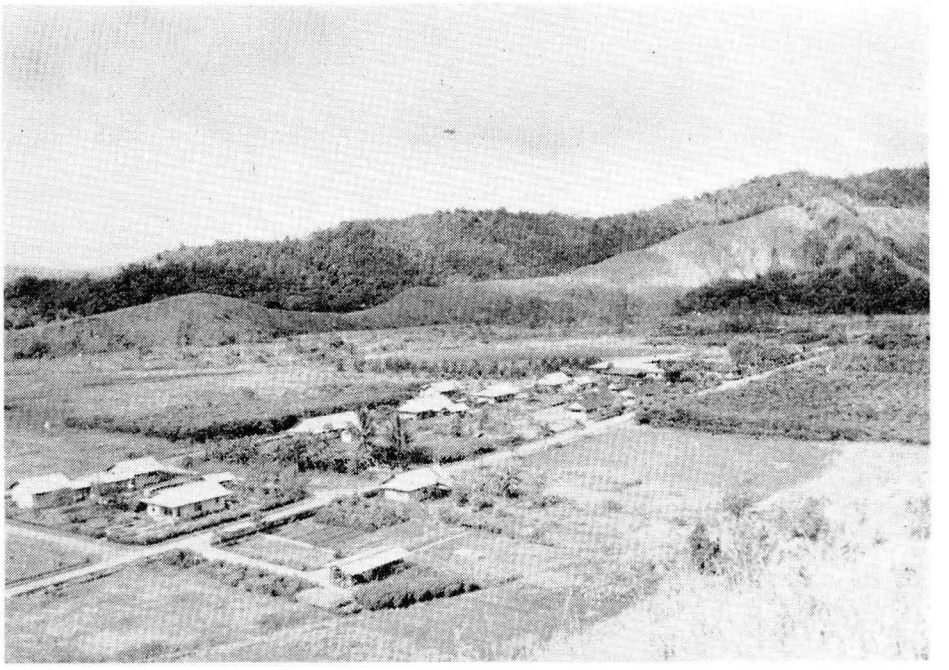
Finally, an indication of their interest in development is that the Burns Commission Report is receiving close study. A leader in this is Peni Waqa, the ex-Buli who recently retired. His successor, Laisenia Raloka, is the Chairman of the Duavata Co-operative Society, Ltd.

United Kingdom Grant For Fiji Timber Research

The United Kingdom has made a grant totalling £10,466 sterling for a research project designed to help Fiji's timber resources. Fiji has a wide range of timbers, but more scientific and technical knowledge is needed about their properties in order that they may be developed to the best advantage.

A timber research unit will be set up in the Colony to carry out investigations and make tests locally. In addition it will prepare samples of different species of timber to send to the Commonwealth Scientific and Industrial Research Organization in Melbourne for more detailed scientific examination.

General view of Kota Nica Agricultural Station, which in addition to its plant introduction and distribution activities runs practical agricultural courses for Papuans.



Agricultural Stations Of Netherlands New Guinea

In Netherlands New Guinea, some fifteen agricultural stations are variously engaged in research, growing plant material for distribution to various villages and extension services, and training Papuans in agriculture and animal husbandry.

by J. H. A. COENEN*

SCATTERED throughout Netherlands New Guinea are some fifteen agricultural stations, many of which I was able to inspect during a recent visit to the territory to continue the Commission's survey on coconuts and breadfruit initiated by Dr. Jacques Barrau, SPC executive officer for economic development.

* Assistant Plant Introduction Officer, South Pacific Commission.

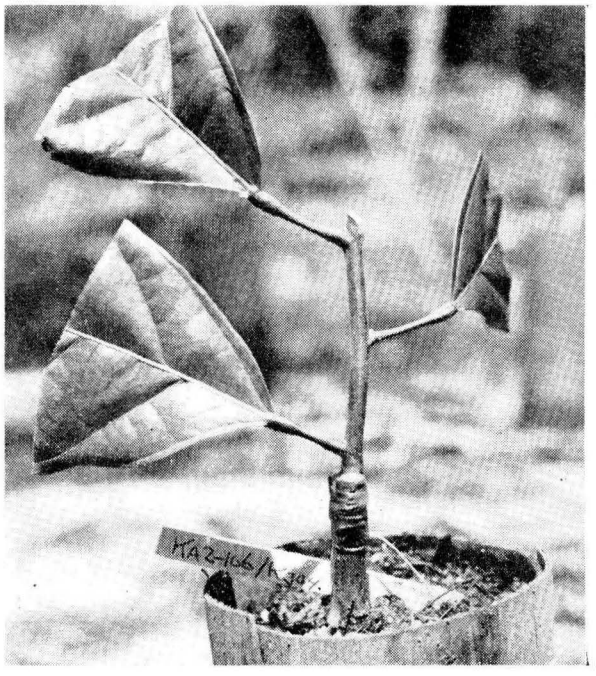
Kota Nica A Main Centre

My first visit was to Kota Nica, which besides being an agricultural station is also an educational centre where Papuans from all over the territory are being trained in agriculture, agricultural engineering and animal husbandry.

A few years ago Kota Nica was also the principal centre for agricultural research in Netherlands New Guinea, but this is now being mainly carried out by the Manokwari Agricultural Research Station. Nevertheless, experiments are still being carried out at Kota Nica with cocoa, coffee, rubber, pepper, vanilla, rice and maize. The station also supplies plant material of annual, biennial and perennial crops to native villages and extension services all over the territory.

Kota Nica's collection of cocoa mainly

Below: An experiment at Kota Nica in new methods for the vegetative propagation of cocoa—a cleft graft. Right: Part of Kota Nica's rubber collection (Tjir 1 x Tjir 1). Seeds and budwood are supplied to growers in the Sentani area.



Above: Kemiri Forestry Station. Mr. H. Smit (right), officer in charge, inspecting the nursery with Mr. J. Butter, Agricultural Extension Officer at Sentani. Spraying equipment is operating in background. Right: Mr. Smit examines seedlings of Araucaria clinkii.

consists of a large number of Keravat trinitario clones and one plot of Amelonado cocoa. A recent introduction is that of Scavina cocoa of Amazonian origin, which is reputed to be resistant to the "witch's broom" disease. Scavina crossings have been made at Wageningen University, Holland, and introduced in New Guinea for observation and breeding purposes.

The station's coffee collection includes introductions from Papua and New Guinea, Belgian Congo, Indonesia, Holland (University of Wageningen) and Surinam. Coffee has been planted all over the territory for observation, in particular in the central highlands.

Rubber seems to be a promising crop for New Guinea, and a rubber garden has been established at the Kota Nica station to provide seeds and budwood for the Sentani area. All the rubber material in New Guinea is obtained from the polyclonal rubber seed garden at Ransiki, where several good clones were introduced before the last World War.

The citrus collection at Kota Nica is well worth mentioning. Several varieties of grapefruit, sweet orange, sour orange, mandarin, pomelo, lemon, lime and citron are growing on the station. Budwood and graftings are distributed to native villages and extension services.

Before flying to Merauke in southern New Guinea I paid a brief visit to the Kemiri Forestry Station near Kota Nica. This newly-established station has an interesting collection of useful timber species.

The agricultural and beef cattle stations at Moppah, about six miles east of Merauke, were visited with Mr. J. Veldhuis, Agricultural Officer of the Merauke District. The climate in the Merauke area differs completely from that of the main part of New Guinea, in that there is an extremely dry and a wet season.

To supply the area with cover crops, citrus species, fruit trees and annual crops the Moppah Agricultural Station distributes seeds, cuttings, graftings and budwood. Mass selection work on coconuts is carried out by this station. Seed nuts of outstanding palms from the area have been collected and planted on the station for further observation.

The Moppah Beef Cattle Station consists of two herds of mixed origin. There is only one bull in each herd, a *Santa Gertrudis* and a *Brahman*, in order to maintain control of breeding. The extensive flat areas around Merauke are very suitable for cattle.

Mechanized Rice-Growing Project Visited

Before leaving Merauke for Sentani and Manokwari I paid a short visit to the mechanized rice-growing project at Koembe, near Merauke. This project was started in 1956 with an experimental polder of about 192 acres. Six rice varieties were used for observation, the average yield being about 1077 lbs. of paddy per acre. In 1957-1958 about 400 acres were planted in rice. In 1959 about 600 acres were cultivated and the average yield harvested was 1979 lbs. per acre, a much higher yield than in previous years.

Throughout the project experiments have been carried out to control pests and diseases and to gain further knowledge concerning fertilizing, tillage, green manuring, best rice varieties to be used, etc.

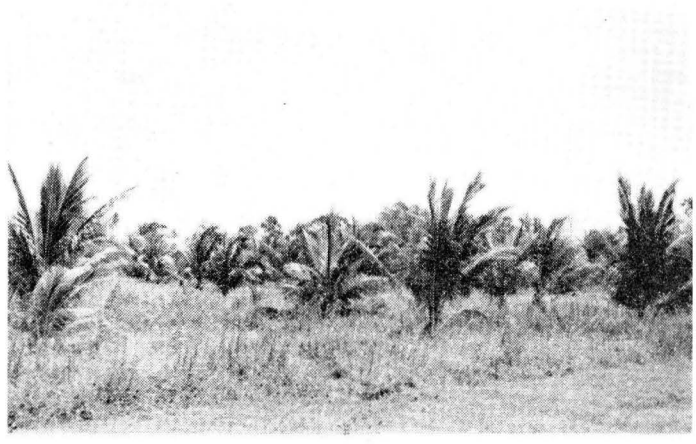
To make Netherlands New Guinea self-supporting in rice, a full-scale rice-growing project will be launched shortly at nearby Merauke. About 12,350 acres will be planted.

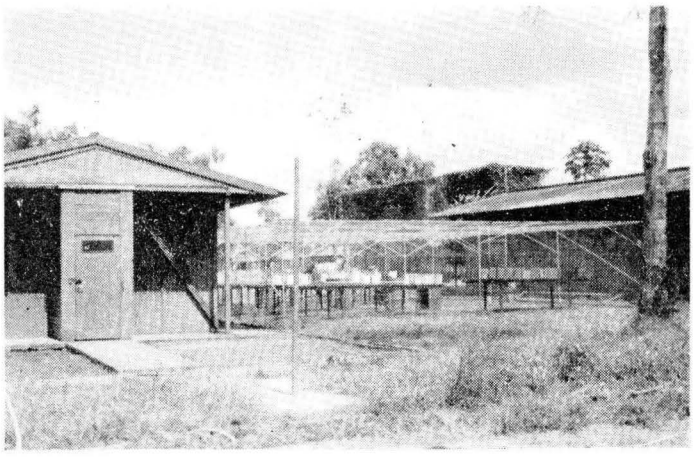
At Sentani I was met by Mr. J. Butter, Agricultural Extension Officer, who showed me promising results of their extension work around Lake Sentani.

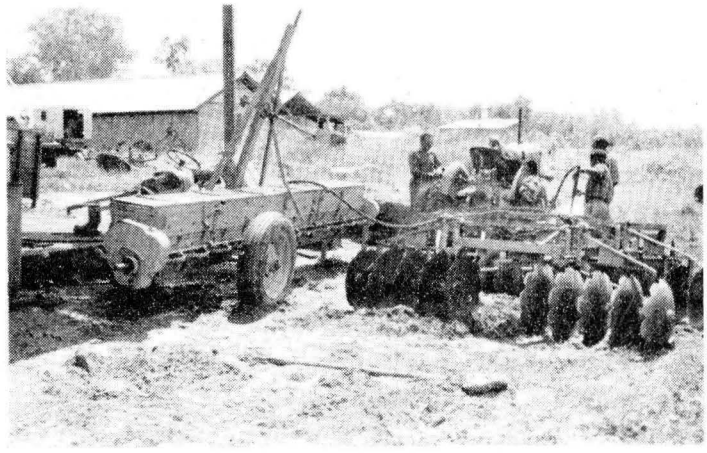
Manokwari To Be Main Research Station

At Manokwari I was met by Dr. K. Ebes, Director of the Agricultural Research Station there. This station will shortly be the main centre of agricultural research in Netherlands New

Moppah Agricultural Station. Below: Selected seednuts in coconut nursery. Right: Seedlings grown from selected seednuts. This plot has been reserved for spacing trials, and for experiments with fertilizers, or artificial pollination, etc.







Koembe mechanized rice-growing project. Above: In this section are tested fertilizers, herbicides, weedkillers, etc. Right: Papuans steam-cleaning two of the implements used in the project—a fertilizer distributor (left) and disc plough (right). Below right: The rice mill. Rice-polishing machine in left foreground.

Guinea. Plans for laboratories, library, living quarters, etc., are ready, and building will begin shortly.

Wosi Agricultural Station, near Manokwari, was also visited. This station provides plant material such as cocoa seedlings or rooted cuttings, vegetable seeds, seeds or cuttings of cover plants and shade trees, seeds or graftings of several fruit trees such as citrus, mango, avocado, rambutan, durian, mangosteen, soursop, etc., to colonists and native villages in the surrounding area.

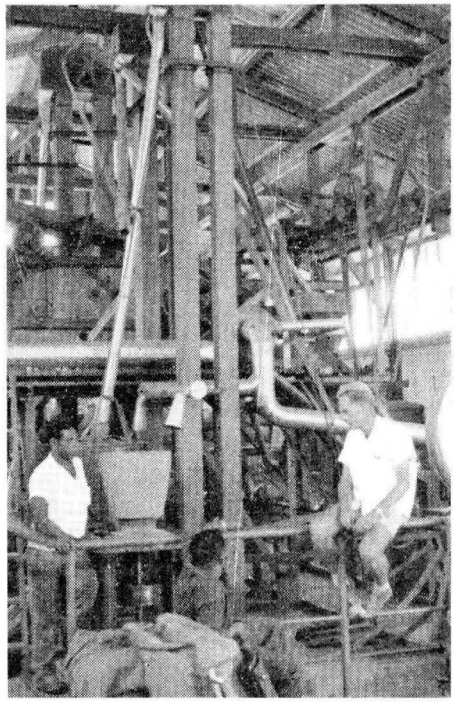
During my stay at Ransiki brief visits were made to the polyclonal rubber seed garden and the plantations of Negumy Ltd. The rubber seed garden consists of about 870 trees of various clones—all introductions from before the last World War.

The Negumy plantations were established to investigate the possibilities of growing commercial crops in Netherlands New Guinea such as cocoa, coffee and kapok. Cocoa seems to be the most suitable commercial crop for the territory.

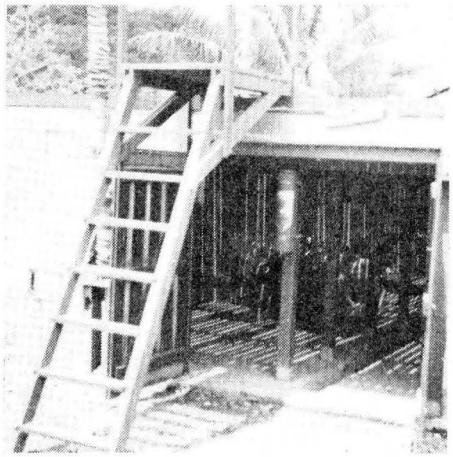
Brief Visit To Japen And Biak Islands

I spent the last few days of my visit on the islands of Japen and Biak. Cocoa is the most important cash crop on the former. The total area now planted is about 500 acres, with a monthly production of 3 tons of dried cocoa. A few years ago a modern cocoa fermentary and drying installation were built at Seroei, at the centre of the island.

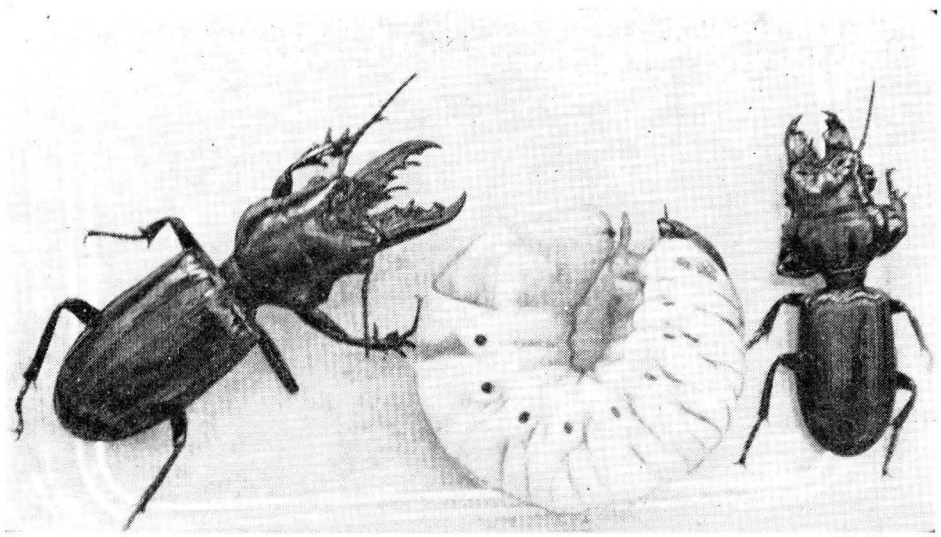
Biak, a coral island, does not have as much arable land as Japen. Good arable land is found only around Bosnik village in the centre of the island, where the Department of Agriculture has established a garden to provide vegetables such as lettuce, tomatoes, pawpaw, etc., for the people of Biak. However, production is insufficient for the large European population, and additional fruit and vegetables are transported by air from Manokwari and Ransiki.



Below: Sun-drying cocoa beans at Negumy plantations; foreman of Negumy Ltd. at left. Below centre: Modern cocoa fermentary at Seroei, on Japen Island. Drying shed with movable roof at left. Below right: Here, sun drying of cocoa beans is being supplemented by artificial drying using oil heaters.



Beetle Predators And Parasites For The Pacific



Ochryopus gigas (larger beetle) and Neochryopus savagei with a full-grown rhinoceros beetle grub. Magnification: 5/4.

During 1959 and 1960 the Commission entomologist, Dr. C. P. Hoyt, carried out in West Africa a search, which he describes below, for predators and parasites of the rhinoceros beetle. He sent several consignments of selected insects by air to Fiji, to the Government entomologist there. In the article opposite, the latter describes how he received and later distributed them to beetle-infested islands of the region.

A SEARCH for predators and parasites of rhinoceros beetles of the genus *Oryctes* was carried out by the author in Sierra Leone and Nigeria during 1959 and 1960. The object of this work was to discover suitable predators or parasites of these beetles, and to collect and introduce them to the South Pacific area, where a related species of this genus is a serious pest of coconut palms. By means of such introduction it is hoped to establish a biological control over this pest species in that area.

During the initial work on this problem in West Africa it was noted that the West African species of *Oryctes* did not appear to use fallen palm logs as breeding sites. This is in direct contrast to the habits of *Oryctes* in other parts of the world.

At Moor Plantation, Ibadan, it was possible to carry out a series of experiments which showed that adults and larvae of *Oryctes owariensis* Beauv. and *Oryctes monoceros* Ol. could utilize these fallen log sites, but that at intervals the larvae were removed by a particular species of "driver ant," *Dorylus.*, and, where the logs were fairly rotten, by field rats.

While the species of *Dorylus* seemed to be a major factor in controlling *Oryctes* in fallen logs, it was judged to be unsuitable for introduction to other areas.

In addition to the log experiments, a large number of larvae of *Oryctes boas* F. were collected and reared to recover any parasites. With the exception of a large tachinid larva dissected from a pre-pupa, no parasites were found in any of the 1200 grubs of this *Oryctes*.

In the Umuahia area of Eastern Nigeria two additional breeding sites of *Oryctes* were found and investigated for predators and parasites. These were dead standing *Raphia* palm trunks, and the debris which normally collects in the axils of the leaf bases just below the crowns of oil palms.

In the dead *Raphia* trunks *Oryctes ohausi* Minck, and *Oryctes owariensis* were found as larva and adults. In the leaf axil debris *Oryctes sjostedti* Kolbe was breeding in fair numbers.

In both habitats, the larvae of these species were preyed upon by the numerous adults and larvae of the Carabid *Neochryopus savagei* Hope, and at times were found to have been parasitized by a large black *Scolia* wasp. More rarely the extremely large Carabid, *Ochryopus*

Below: Plywood trays used for transporting beetles were divided into either 35 or 49 cells, each containing a single beetle. Right: Neochryopus savagei released fromtray on a white sheet.

gigas Schio., was found in the oil palm crown debris. These beetles readily consumed both larval and adult *Oryctes*.

It was decided to collect and introduce if possible the two predators and parasites to the South Pacific. About 65 *Scolia* wasp cocoons and some 4000 adults of *Neochryopus savagei* were sent from Nigeria to Fiji and distributed from there to other islands. Unfortunately, *Ochryopus gigas* could not be collected in any numbers, and its life history and habits remain to be determined.

It is of course too early to determine the results of these introductions, but it is thought that at least *Neochryopus savagei* has every chance of becoming established.

Introduction To The Pacific Of *Oryctes* Predators and Parasites

By B. A. O'CONNOR*

BETWEEN May 12 and August 25 of last year, seven consignments of predators and parasites for trial against the rhinoceros beetle were received in Fiji by air freight from Nigeria. These had been collected and despatched by Dr. C. P. Hoyt, of the South Pacific Commission. They were received in Fiji by the writer, some being retained in Fiji and the remainder sent to several other territories in the South Pacific area where *Oryctes rhinoceros* occurs. Eastern and Western Samoa, Papua-New Guinea and Tonga received consignments, but for a variety of reasons it was not possible to send any to Netherlands New Guinea, the American Trust Territory or Wallis Island.

Insects received from Nigeria were 4016 adult and 94 larval *Neochryopus savagei*, 14 adult *Ochryopus gigas* and 64 cocoons of Scoliid wasps. *Neochryopus savagei* and *Ochryopus gigas* are large predatory beetles of the family *Scaritidae*, while the Scoliids are external parasites of the larvae of *Scarabaeoid* beetles.

From the Scoliid cocoons, two wasps emerged and died en route from Africa. Dead larvae and pupae were found in 34 of the cocoons, leaving 28 viable specimens from which no wasps have emerged up to the time of writing. The viable cocoons have been kept in Fiji.

Two Beetles Kill Nearly 300 Grubs

Of the 14 adult *Ochryopus gigas*, 12 were liberated in the field in Fiji, and two, a male and a female, were kept in sawdust in the insectary and provided with a regular supply of large, third instar *Oryctes* grubs.

The two beetles lived for nearly four months in the insectary, and during this time killed nearly 300 grubs. During the last month the beetles remained on the surface of the sawdust, instead of burrowing as they had done earlier, and the rate of killing of grubs was greatly reduced, only 20 being killed during the last five weeks. No eggs or larvae of the beetle were found in the sawdust.

Ochryopus gigas will attack and kill adult rhinoceros beetles, and has a habit of removing all the legs of its victim before killing it.

Of the 4016 adult and 94 larvae *Neochryopus savagei*, all the larvae and 995 adults were kept in Fiji. On arrival, 166 of the adults (16.7%) were dead, and 821 were liberated. Of the larvae 30 were liberated.

American Samoa received 835 beetles, and mortality was reported to be low. Western Samoa received 1078, and here also mortality was low (of the first 553 beetles sent, 77—or 14%—were dead on arrival). Papua-New Guinea received 879, of which 275 were dead on arrival. The higher mortality in this case was due firstly to the inordinate length of the air journey from Suva to Rabaul in some instances, and secondly to an experimental feeding of beetles with canned beef, which caused a great number of deaths. Of the 210 beetles sent to Tonga, only 17 were dead on arrival.

Adult *N. savagei* have been kept alive in the laboratory for periods in excess of three months. This beetle cannot cope very well with large third instar *Oryctes* grubs, but thrives on small third instar grubs and those of the earlier instars. The beetles were kept in jars of sawdust, in which no eggs were found, though dissected females contained well-developed eggs.

Special Trays For Transporting Beetles

For despatching the beetles from Nigeria, Dr. Hoyt used plywood trays divided into 35 or 49 cells, each containing a single beetle. This was necessary to avoid cannibalism. The cells were closed with strong, galvanised wire gauze, as it was found that the beetles could chew holes in ordinary fly-wire. The cells contained damp wood-wool. A number of trays were enclosed in a large plastic bag, and then packed into a strong cardboard packing case.

The length of the journey from Nigeria to Fiji varied from a week to ten days.

* Senior Entomologist, Fiji Department of Agriculture. Last year the Fiji Government made Mr. O'Connor's services available to the South Pacific Commission as part-time consultant for its rhinoceros beetle project.

Commission Re-Appoints Social Development Head

At its twenty-first session held last October, the South Pacific Commission paid high tribute to the contribution made to the accomplishment of its objectives by the executive officer for social develpoment, Dr. Richard Seddon, when it offered him re-appointment for a further five years from August, 1961.

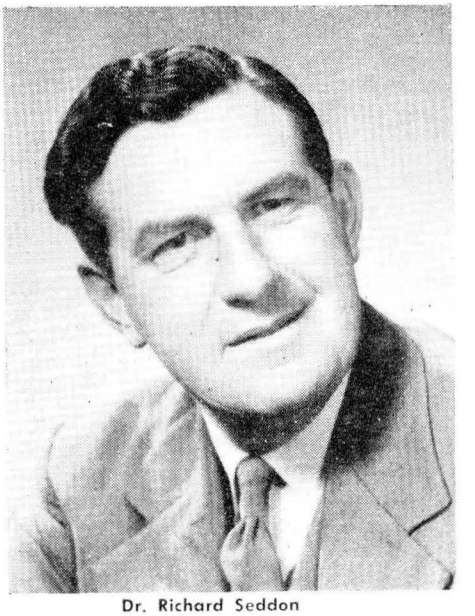
In his first five-year term of office, Dr. Seddon has established a highly-successful programme in the social development field, notably in projects covering women's interests, education, literature promotion, and co-operatives.

He has achieved marked success in promoting interest and financial support from outside bodies for his work, notably from the United Nations Educational, Scientific and Cultural Organization for the literature production training centre now operating in the British Solomon Islands, and from United Church Women, a leading women's organization in the United States. In 1958 this body made a grant of $30,000 towards the cost of the Commission's women's interests project, and is taking a close and continuing interest in its development.

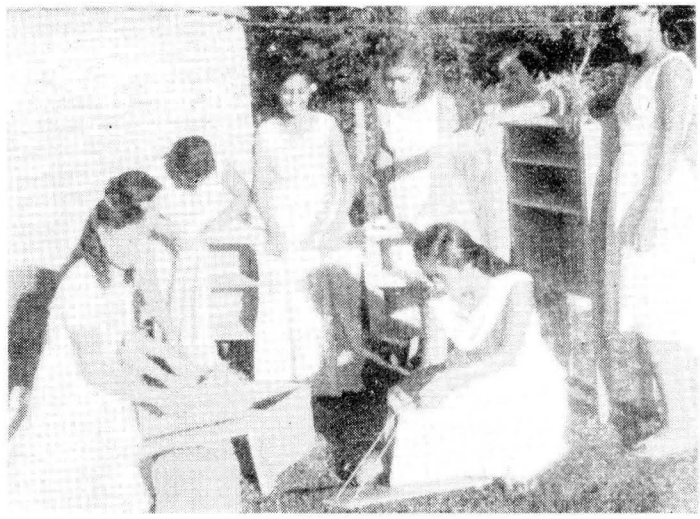
Fiji Farmers Helped By Advisory Committees

Fijian farmers in the south-eastern area of the main island of Viti Levu are being helped to develop their land by committees specially set up for the purpose, the members being elected by the farmers themselves.

The object of the scheme, which is being encouraged by the district administration, is to co-ordinate economic planning of the area. Farmers will also receive advice on such matters as cultivation and marketing problems.



Dr. Richard Seddon



Classes in sewing and carpentry have proved widely popular among Aitutaki women.

New Interests For Aitutaki Women

Under the expert guidance of a women's interests officer, organized activities for Aitutaki women and girls have expanded greatly in the past year. Classes have been widely held in cooking, sewing and carpentry, and illustrated talks given on a variety of health topics. New clubs have been formed and old ones revitalized. Church groups, women's committees, sports bodies, and other women's organizations . . . all have benefited greatly.

By BEVERLEY HOLLAND*

OVER a year has passed since the women's interest project in Aitutaki was launched by the South Pacific Commission in conjunction with the Social Development Department of the Cook Islands. Miss Marjorie Stewart initiated the scheme, and when she left in January last year Miss Mary Hopkirk took complete charge. Her job seems to occupy her twenty-four hours a day, seven days a week. Put briefly, her task is to help women and girls in any way she can.

In Papua and New Guinea, women's clubs are doing a splendid job in helping their members to adjust themselves to newer and better standards of living. In Samoa the women take an active interest in village affairs and are responsible for some of the improved conditions that now exist there.

What is happening in Aitutaki? Any community worker knows that progress is slow, and that tangible results are often difficult to define. This is normal. You cannot rush into a place which has been progressing to its own satisfaction and immediately overthrow all the accepted methods of living, even if you are replacing them with better ones. The desire for improvement must come from the people. They must first realize that they lack something, and then have trust in someone to supply it for them.

First Steps

To get to know the people, and to get them to know and like her, were the first steps taken by Mary Hopkirk. She spent hours walking through the villages, talking to the women, helping a little with any plaiting they were doing, laughing with them, gradually offering to show them some of her skills.

A keen Guider, she has already done a lot for the Aitutaki Guides, and she has been able to help the Basketball Association by instructing in the new rules and training referees. Church groups, *Au Vaine* (the traditional women's committees) and Clubs all come within the sphere of her activities, and have all been approached to see how best they can be helped.

Two of the villages have formed branches of the Country Women's Institute, and have regular meetings. They work out their programme three months in advance. These programmes provide varied activities, with some form of social period such as singing or play-acting usually being included. Other European women on the island have been only too willing to help in this side of things. Four other groups meet fairly regularly in various villages, and the Young Women's Club (girls aged 17-22) meets weekly.

Classes In Cooking And Sewing

Leaders were chosen from all these groups and they were given training by Mary in cooking and sewing. They were then able to demonstrate to their own clubs.

Of necessity, most women spend a lot of their time cooking. The classes are aimed at showing them better ways to use local foods and some simple recipes which will make an attractive change in their diet.

When giving demonstrations in the villages, Mary uses the native oven or fireplace of the house where the meeting is being held. Such things as fritters, biscuits, lemon pudding, scrambled eggs, rice custard, guava juice, guava jam, mock cream, breadfruit curry, and peanut stew are being served in more and more homes.

These cookery sessions also open the way to discussions on nutrition, and the care of babies. The mothers want to know how best to feed their infants, and it is very encouraging to hear of a few fathers who, in spite of the difficulties of

(continued on page 62)

* Mrs. Holland, who is Editor of *The Cook Islands News* and *Cook Islands Review*, recently visited Aitutaki and talked to leaders of women's groups there. On her return to Rarotonga she wrote this article for the *Bulletin*.

Record-Keeping On A Coconut Plantation

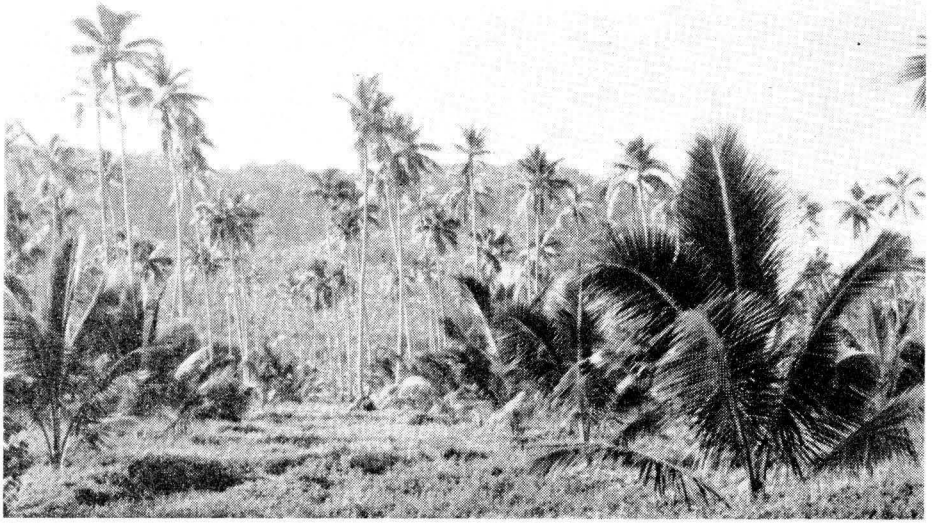
. . . . *A Valuable Aid To Management*

This article describes a simple but adequate recording system to aid in the efficient management of a plantation. It has been operated successfully upon both small and large estates.

By D. R. A. EDEN

Nut collection is an important work classification in the field book.

IT has been said that businessmen make the best planters. This appears to be a rather sweeping statement. Some businessmen would be temperamentally unfitted to live an isolated life in a tropical climate, or to understand and handle indigenous labour. Some might be unable to cope with practical matters in places far removed from tradesmen or technicians. A whole lot depends upon the man.



A well laid out plantation of young trees being progressively planted to replace the old plantation in the background. Western Samoa.

On the other hand, the application of business methods to the running of an estate may spell the difference between a successful planter and a beachcomber.

Many new planters possess qualities for making a success of the venture they have undertaken, but in the unfamiliarity of their surroundings find it difficult to set up a system of financial control best suited to plantation requirements.

This article has been written in the hope that the simple but adequate recording system described will meet their requirements. The system has operated successfully on both large and small estates, and, although it is described for use on a coconut plantation, it may be applied, with the necessary modifications, to cocoa, coffee or rubber plantations.

A competent plantation manager may be described as one who runs his estate in a well-maintained condition, and who produces a top-quality product at a figure below the average cost of production.

It should not be very difficult for a planter to find out from his neighbours how much it is costing them to produce a ton of copra. Sometimes the local Department of Agriculture will publish, from time to time, current costs of production for the territory's principal products. It should be the aim of the plantation owner or manager to ensure that his costs of production do not exceed the known average in his district.

Cost of production is the only yardstick a planter has for gauging the success of his administration from month to month. Such costs can only be computed correctly from accurate day-by-day records.

The system described leads the reader from primary notebook records to the plantation paysheet, and finally to a monthly financial statement called a report.

The report is so set out that it gives essential financial information at a glance, and pinpoints items of expenditure that require adjustment. From the figures on the report, the cost of production—either for a current month or over many months to date—are easily computed.

Sample pages taken from a plantation pay sheet book and from a report book are reproduced in Figure 1 and Figure 2 respectively. These, or variations of them, are in common use.

Primary or rough record books, from which figures are extracted for entry on pay sheets and reports are:

(1) Field Book (2) Green Copra Book (3) Dry Copra Production Book (4) Plantation Ruled Invoice Book for Stores and Rations Issued.

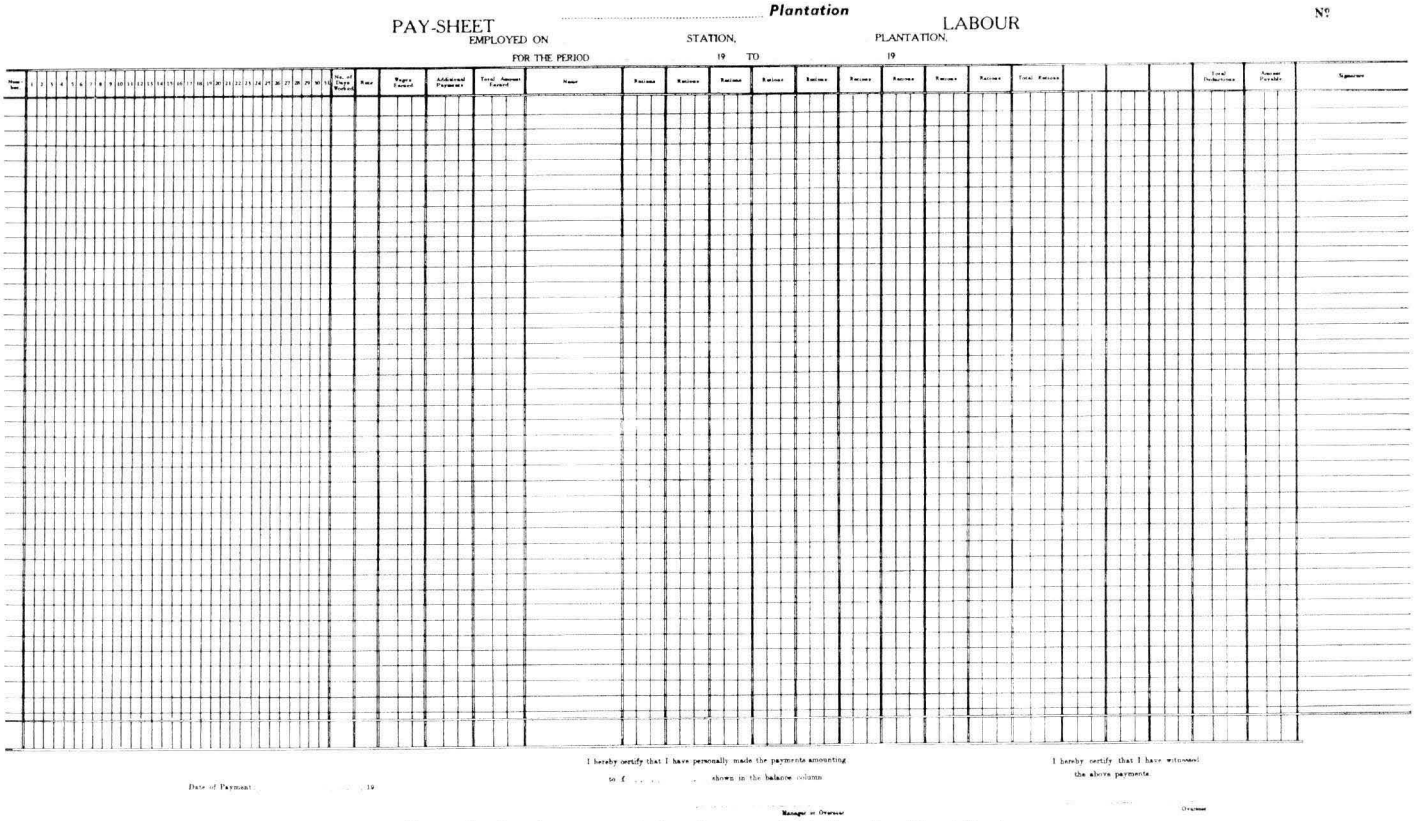


Figure 1. Specimen page taken from a plantation Pay Sheet Book.

Field Book

The field book is an easily carried time book used by any of the personnel on a plantation who may be responsible for a gang of labourers. The pages of a field book have similar rulings to those which may be seen on the left-hand half of the paysheet in Figure 1. Each page has a wide column for the labourers' names, and thirty-one narrow columns. In the latter are recorded the presence or absence of each workman every working day. When the narrow columns are added up, they give the total number of units employed upon any day. At the day's close the information entered in the field book is transferred to the more permanent paysheet.

It is necessary to reserve a number of pages in the field book for recording the daily distribution of labour. There are only a certain number of classified jobs on any plantation on which the labourers may be employed, but it is most important that such allotments be precisely recorded. Here are the more usual classifications of work on a coconut estate:

(a) Collecting Coconuts
(b) Transporting Coconuts
(c) Cutting and Opening
(d) Drying
(e) Bagging and Loading
(f) Water Supply
(g) Cutlassing or Weeding
(h) Road Maintenance
(i) Buildings and Driers
(j) Motor Transport and Launches
(k) Homesteads
(l) Pests and Diseases
(m) Rations Issued
(n) Staff Salaries

These classifications are for both stores and labour allocations. They are written down on the page for the distribution of labour and then duplicated in the same sequence on the report in the column headed "Items." The information compiled in the distribution of labour is not required for the paysheets. Only at the end of a month when the totals against each heading are known, are the figures transferred to the report.

For distribution the ordinary field book rulings will be found satisfactory. Here is a part of a field book page used for the distribution of labour, using a few of the classifications mentioned:

Daily totals must agree with the daily totals on the paysheet. Capital items are separated from maintenance items, and remain so when transferred to the report. Capital expenditure is not included with the figures when finding the cost of production. The month's totals are transferred to the report in the column headed "Units".

While in the field book the task or pieceworkers are marked present when their day's task has been completed: those paid on contract rates must be shown separately from those working on a daily wage.

Green Copra Book

Copra cutters may be paid on a daily wage, but they are generally employed on contract and are paid according to the number of pounds of green copra which they cut during the month. Their tallies are kept in the green copra book.

In order to ensure that green copra

DISTRIBUTION OF LABOUR

PLANTATION *MONTH OF* *19*

ITEM	NATURE OF WORK	DAYS OF MONTH 1	2	3	4	5	6	7	8	9	10	11	etc.	MONTHS TOTALS
a	Collecting coconuts	3	.	4	3	3	3	3	2	.	4	3		
b	Transport coconuts	6	.	4	6	6	6	6	4	.	4	4		
c	Cutting and Opening	9	.	9	9	9	9	9	9	.	8	8		
	Capital													
1	New clearing	4	.	6	6	5			4	.	4	6		
2	Lining out			2	1				1					
3	Ring weeding	4	.	3	3	3	3	3	3	.	3	2		

Plantation

ESTIMATED PRODUCTION, 19

REPORT for Month of , 19

PRODUCTION:

	Weight	Cases (sacks)
Previous Month:		
Month's Production:		
Total to date:		

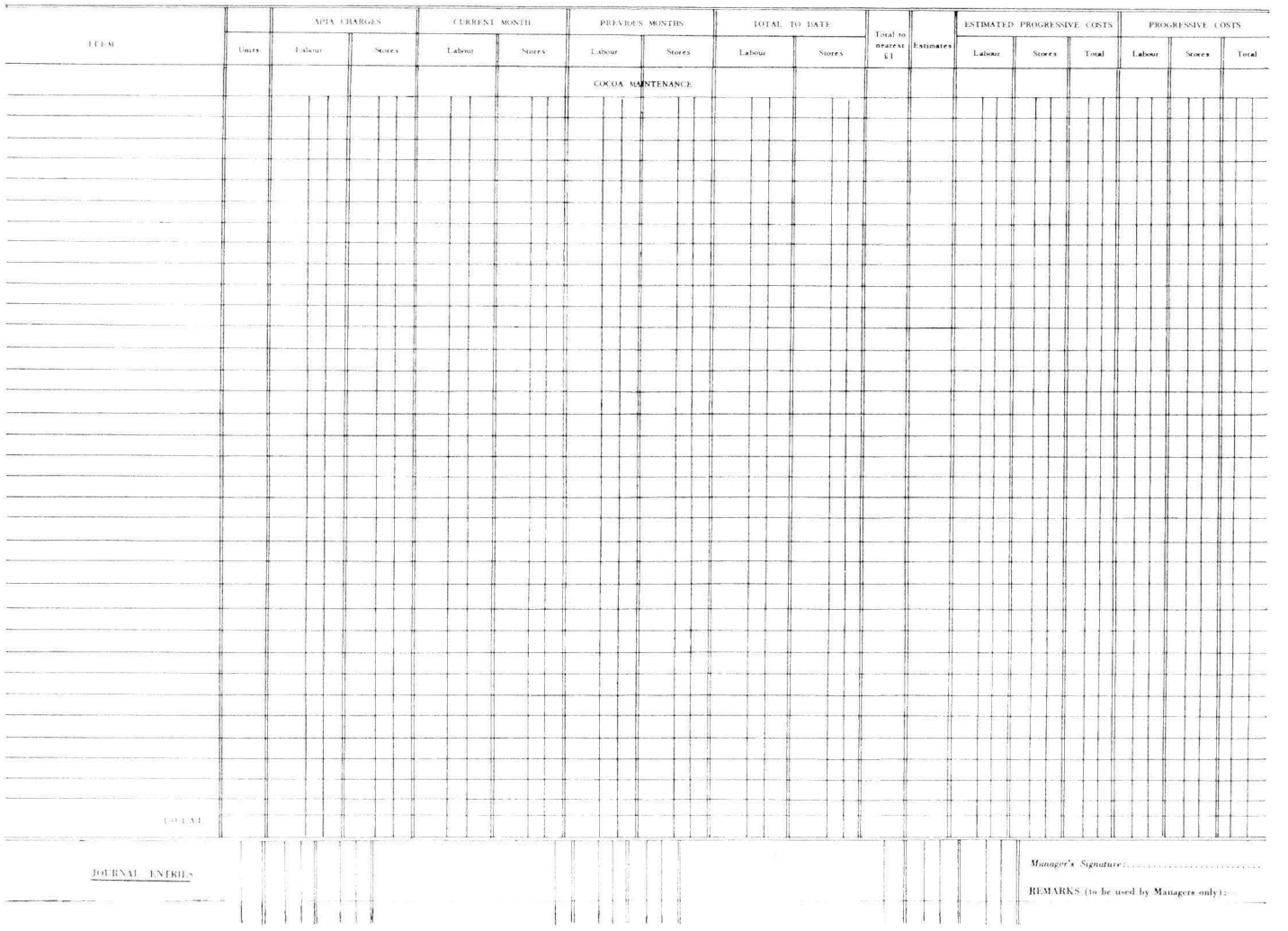


Figure 2. Specimen page taken from a plantation Report Book.

may be loaded into the drier before fermentation begins to spoil its quality, a good practice is to weigh the green meat thrice daily, at no longer than three-hourly intervals.

A simple way of keeping the cutters' tallies through three weighings and at the same time to record the weight of green copra loaded into the drier is set out below:

From the weighing slip the weights are transferred daily to the more permanent green copra book as follows:

When the month is concluded, each man's cut is added up and calculated at the agreed-upon contract rate. Wages thus accruing are transferred to his name on the paysheet in the "Additional Payments" column.

The dry copra book is simply a running record of the daily out-turn of dry copra from a drier or driers. The grand total from this book at the end of the

Green Copra Cut

Date Month of	Copra Cutters' Names Total Day's Cut Only				Loaded Into Drier
	Iman	Rere	Soraken	Happy	
1	614	515	729	684	2542
2	713	601	742	623	2679
3	612	624	648	709	2593
4	589	701	697	714	2701

Weighing Slip For Green Copra Cut

Name	First Weighing	Second Weighing	Third Weighing	Total Day's Cut	Total Loaded Into Drier
Iman	220	210	184	614	
Rere	148	200	167	515	
Soraken	240	248	241	729	
Happy	230	220	234	684	2542

While there is little evidence of planning in this poorly laid out, overcrowded and overgrown plantation, efficient record keeping would still be a valuable aid to its management.

month is transferred to the report, under the heading "Production."

The daily totals in both the green and dry copra books are required to ascertain the percentage of shrinkage on the copra from the green to the dry weight. This will be dealt with later.

Books For Stores And Rations

The only other preliminary records required are those dealing with stores and rations. These may be in the form of invoice books and statements, but a much simpler and less expensive combination schedule may be prepared by the planter.

Suggested layouts are given below for Stores and Rations Issued and for Rations - Account Sales:

The foregoing are continued with any other items necessary until the month ends. The totals are brought to charge on the report against the correct item in the column provided for stores. The only exception is Item (m), Rations Issued. This total is placed against Item (m) in the report but in the "Labour" column; rations are issued in lieu of wages, but are not combined with other labour charges when the unit cost is computed. Unit cost is referred to in a later section.

It is common practice on plantations to open the store for ration purchases twice weekly, and generally to limit the range of goods to about nine lines. The nine ration columns on the paysheet allow for a worker's total purchases in any particular line to be shown separately.

A more extensive "shop" would require more elaborate invoicing for the account sales. Alternatively, the labourers may be paid weekly so that their requirements could be paid for in cash.

The planter may ask why it is necessary to charge on the report, stores and rations which he may have already paid for. It is for internal accounting only, to spread the cost of the stores, so that the plantation is charged only for goods actually used. In this way production costs are not loaded, in any one month, with expenses which rightfully belong to succeeding months. The planter is then able to assess, month by month, the working costs of his estate.

Closing Off At The End Of A Month

The units of labour used throughout the month as shown in totals on the distribution page are entered on the report against the correct item at "Unit Cost."

Unit cost is found by dividing the total number of units of labour used during the month into the sum of the amounts expended upon wages. This latter sum will be gained from the foot of the column on the paysheets headed "Wages Earned." The amount in the "Extra Payments" column is not included in the unit cost, because only expenses for contract work are entered in that column, and such expenses are allocated directly to items concerned. In the same way salaries are charged directly to item (n) on the report.

Suppose the unit cost worked out at, say, 8/6d. per diem. If then, for example, the item (h), Road Maintenance, showed 25 units expended for the month, its extension to "Current Month—Labour" on the report would be $25 \times 8/6 = £10/12/6$.

When all entries have been completed in the current month's labour column on the report, a check should be made to see that its total agrees with the total at the foot of the paysheets under "Total Amount earned" PLUS salaries and the cost of rations issued.

Finding The Cost Of Production

When all the details of the current month have been entered on the report, that is, Labour, Rations, Stores and Production, the previous and the current month's totals are added and extended to give totals to date.

Now if the month's production cost is required, add together the totals of the current month, Labour and Stores, and this, divided by the number of hundredweights of copra produced, will give the current month's cost of one hundredweight of copra.

For example, say 468 cwt. of copra

STORES ISSUED

PLANTATION *MONTH OF* *19*

RATIONS ISSUED		COLLECTING NUTS		TRANSPORT COCONUTS	
3 sks. rice @ 52	7/16/0	ITEM (a)		ITEM (b)	
47 tns. c/beef @ 2/3	5/5/9	1 Set Donkey Baskets	7/14/0	1 Trailer tyre ex Benzine book — 49 galls. gas Fordson	
47 tns. pilchards 2/-	4/14/0			ITEM (m)	
31 stks. tobacco 1/-	1/11/0			pts. ref. inv. 960.	
5 lbs. tea 6/-	1/10/0				
8 sks. rice 52/-	20/16/0				

RATIONS — ACCOUNT SALES

NAME OF EMPLOYEE	SOAP, BAR, 1/6		RICE, SACK, 52/- OR LB. 1/-	ETC.
Tio	11. 1121. 2 = 9	13 6	..s..... = 52	2 12 0
Pepe	..111...1 = 4	6 0	2. 2. 2. 2. 2 = 10	10 0
Rata	.1...111. = 4	6 0	222222222 = 18	18 0
Sofe	....111.1 = 4	6 0	....s.... = 52	2 12 0
Erasmus	.1.1.1.1. = 4	6 0	926269265 = 47	2 7 0

cost £631/16/-, then 1 cwt. would cost $\frac{12,636/-}{468}$ = 27/- cwt., or £27 per ton.

In the same way, if the progressive cost is required, then the production to date is divided into the total to date of all labour and store costs.

Study Of Costs On The Report

If rising costs are evident and exceed known average local costs, then a close survey of the report should reveal the items responsible.

If high but reasonable expenditure is evident under stores, due possibly to repairs to a drier or other building, this should eventually right itself when the costs become spread over subsequent production.

On the other hand, unusually high expenditure under labour should always be carefully examined. It may indicate the wasteful use of manpower or profitless perfection in field work. First find the particular item or items which show appreciably higher or rising costs when compared with previous months, then endeavour to reorganise the prevailing practice in the field to effect savings.

High costs may also be due to the employment of too many supervisors for the size of the estate, to a percentage of loss through harvesting a high proportion of growing nuts (i.e. long periods between collections of nuts) or to excessive shrinkage during processing.

The latter may be the result of theft, careless handling in the processing, or a defective drier.

On one coconut estate the percentage of shrinkage from green weight to dry copra suddenly rose alarmingly. Eventually, after examination revealed that there was nothing wrong with the drier, it was discovered that the new attendant was hand picking the copra and extracting from it singed pieces and burning them in the drier fire. This was for no other purpose than to prove that the copra which he made was better and whiter than the copra produced by "this other fella he stop along smoke-'ouse down below."

If the shrinkage had not been checked on that plantation the drier attendant might still have been burning valuable copra.

Finding The Percentage Of Shrinkage From Green Meat To Dry Copra

First take the weight of dried copra from the green weight. Then the difference, multiplied by 100, is divided by the green weight. Example:

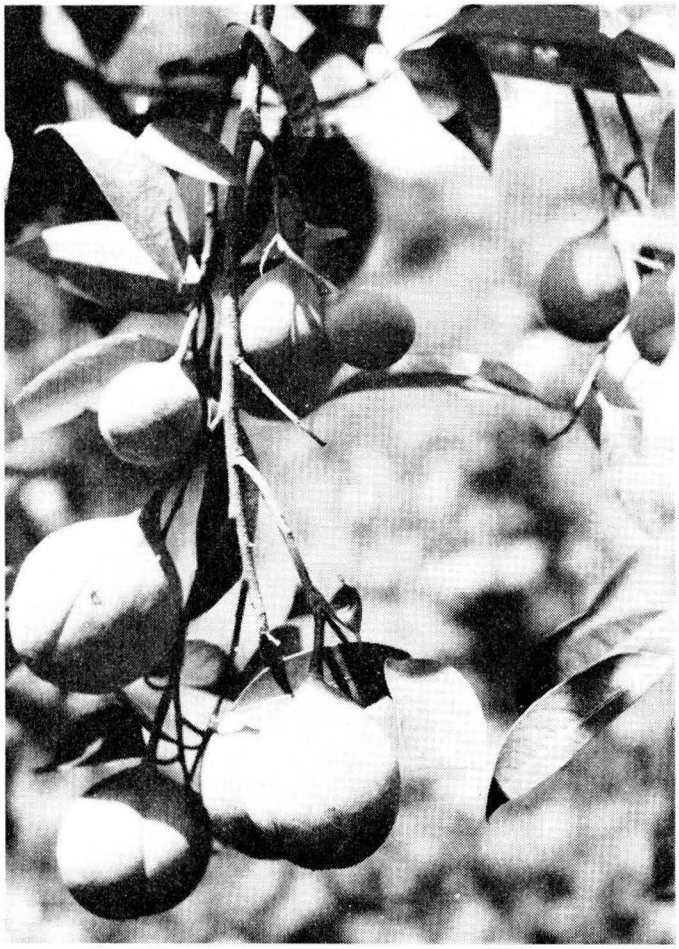
	lbs.
Green meat loaded into drier	67,429
Dry copra, less bag tare	38,143
Difference	29,286

Therefore, 29,286 × 100 divided by 67,429 (green weight) = 42.32% shrinkage.

The foregoing result is possibly a little below average shrinkage from a good drier, and it is recommended that at least one test drying should be conducted in each drier on a plantation. The drier superintendent or manager should be present throughout the whole test. When the shrinkage from such controlled processing is obtained, it may then be regarded as a target shrinkage for future operations.

In conclusion, it should be emphasised that expenditure upon capital works such as clearing and planting new land, making new roads or constructing new buildings should be shown separately upon the report and not included with the figures when computing costs of production.

New areas being brought into production remain a capital charge until the coconuts achieve reasonable bearing age. This is rarely before they are six years old. Thereafter such areas will produce sufficient revenue to entitle them to be included in the general maintenance costs of the plantation.



Heavily bearing branch of five-year-old Banda nutmeg.

Nutmeg Production In Netherlands New Guinea

In Netherlands New Guinea, nutmeg is an important crop. In 1957, 350 tons of nutmeg and 80 tons of mace were exported, representing half the total value of all agricultural products exported from the territory in that year.

By M. FLACH*

IT is generally known that nutmeg and mace originated in the island of Banda in Indonesia[1]. Less well known, however, is the fact that nutmeg is also grown in Netherlands New Guinea, on Bomberi Peninsula.

It appears that as early as 1678 during an exploratory voyage of the Dutch East Indies Trading Company to New Guinea, nutmeg was found there. In 1793 the first samples of New Guinea nutmeg and mace were brought back. It was said that taste and aroma equalled those of the Banda variety.

In 1888 the tree was described by Warburg, who gave it the name of *Myristica argentea*. It is the so-called Papuan nutmeg tree to which Bomberi Peninsula owes its present prosperity.

The best-known kind of nutmeg, the so-called Banda nutmeg, is usually exported from Indonesia. It is the seed of *Myristica fragrans*.

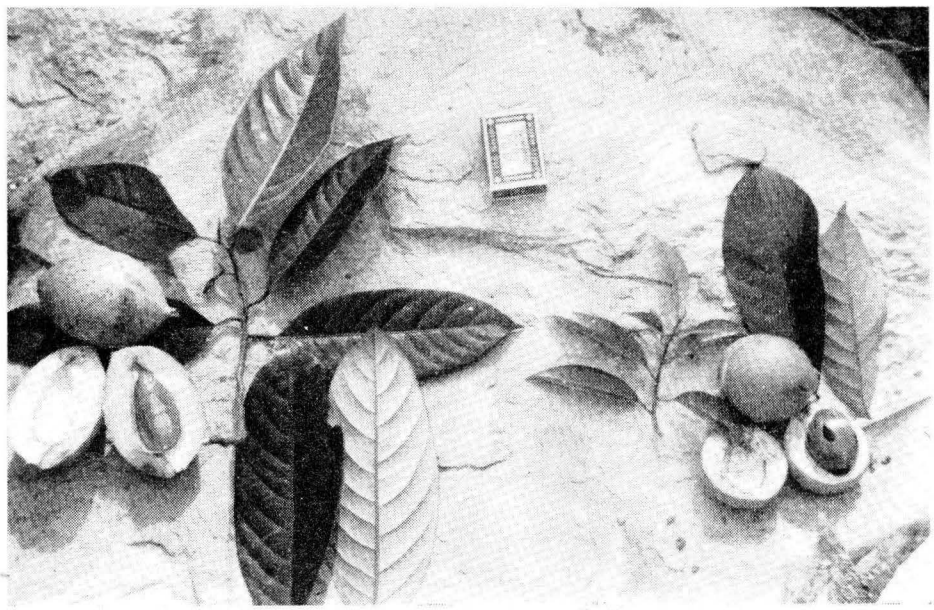
Although Papuan nutmeg has been exported for over a century, few accurate records have been kept. It seems that originally, it was merely gathered as a forest product. In 1893, however, Treub mentioned the beginnings of a very primitive method of cultivation in the region where the town of Fakfak is now situated. The trees appeared in closed areas, which suggested that they might have been planted.

It was not until 1936 that the matter was investigated by an expert, the forester Salverda. He concluded that the plantations were started by intentional planting of seeds from the forest, on areas left after shifting cultivation. With this intentional planting, it can be said that a method of cultivating the nutmeg began to develop. While very primitive, it was started by the local people, without guidance or support from overseas, and is therefore unique in New Guinea.

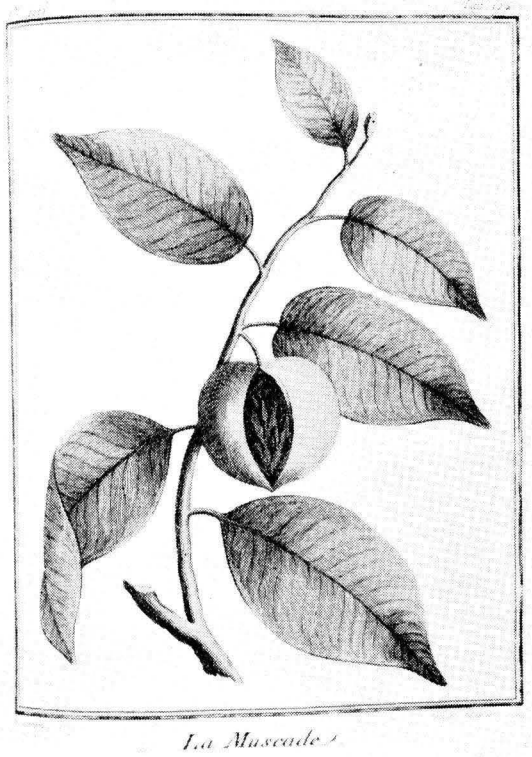
Before World War II the Govern-

[1] The nutmeg is the actual seed; the mace is the fleshy aril or skin which covers the nutmeg. Nutmeg and mace grow within an oval-shaped husk of a peach-like appearance.

* Mr. Flach, an Officer of the Department of Agriculture, Netherlands New Guinea, is stationed at Fakfak.

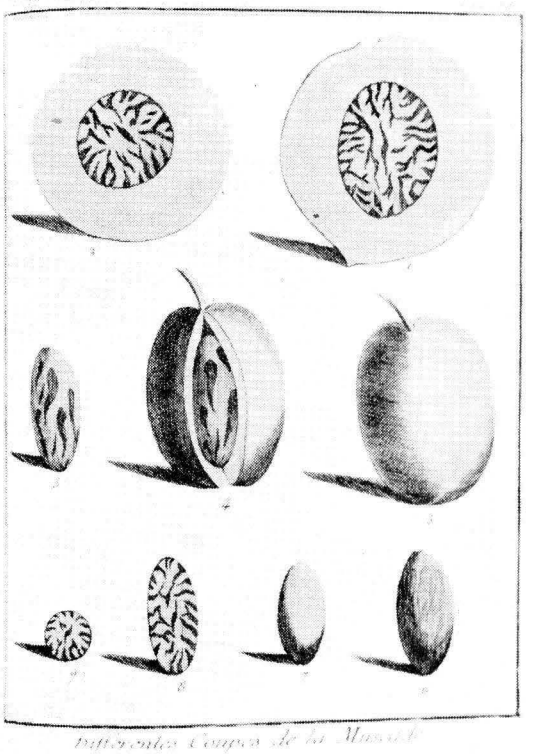


Papuan (left) and Banda nutmeg. Note pronounced difference in shape and size.



La Muscade

Nutmeg was found in Netherlands New Guinea as early as 1678, during an exploratory voyage sponsored by the Dutch East Indies Trading Company. These illustrations are reproduced from "Voyage a la Nouvelle-Guinee", published in Paris in 1776. The book contains an account by M. Sonnerat of his visit to New Guinea in the eighteenth century.



ment did little or nothing to stimulate the cultivation of the Papuan nutmeg. Salverda, however, collected valuable information as early as 1936 when he put forward suggestions for improvement. These were not followed for fear that the Papuan nutmeg might become a competitor of the Banda variety. Later consideration was prevented by the outbreak of World War II.

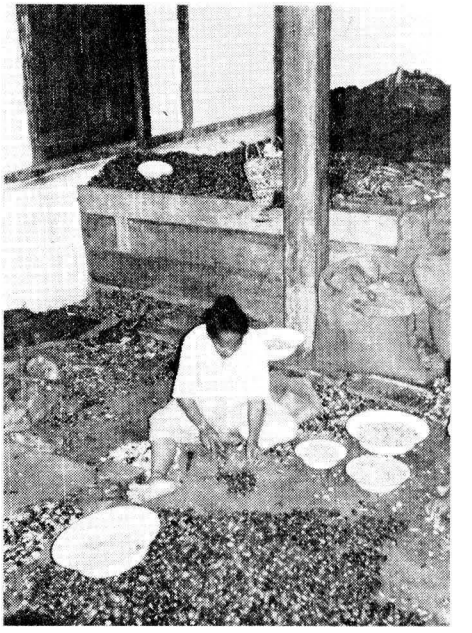
The inhabitants, however, did not wait, and in the years immediately before the war several enterprising people planted small areas with Banda nutmeg. Unfortunately the greater part of these plantings was destroyed during the war, when the Japanese ordered food crops to be raised on the land they were occupying.

Steep Price Rise After War

When after the war Netherlands New Guinea became the centre of much attention, little thought was given to the small export of nutmeg and mace. In 1955, however, prices soared owing to a sudden decrease in exports from other nutmeg-producing countries. The price of nutmeg rose from one Dutch guilder per kilogram in 1955 to eight in 1957, while the price of mace in the same period went up from two to ten guilders a kilogram*.

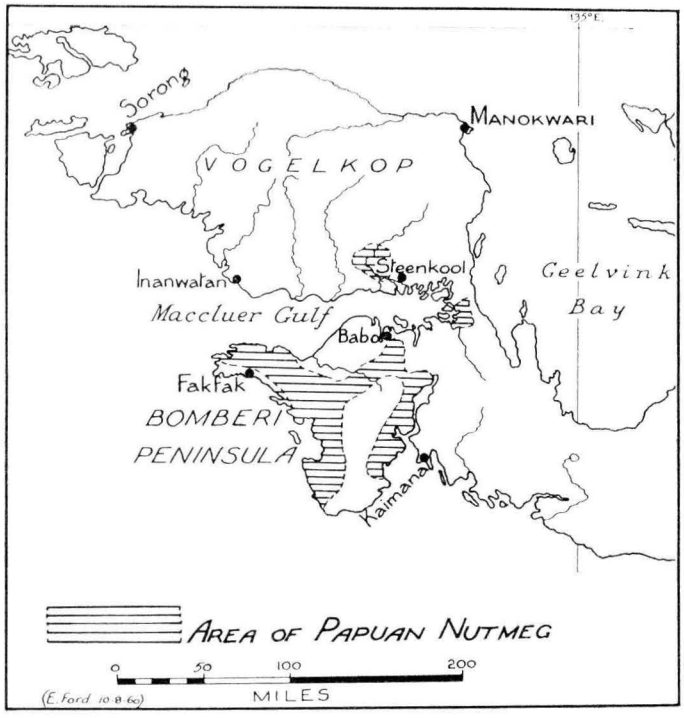
Due to this rise, exports increased from 240 tons of nutmeg and 60 tons of mace in 1955 to 350 tons of nutmeg and 80 tons of mace in 1957, with a value in the latter year of 2,500,000 guilders. This meant that 50% of the value of agricultural exports from Netherlands New Guinea came from nutmeg. This export was almost entirely produced in an area with a population of 11,000, which meant an income of 225 guilders per person annually, or of 900 guilders for an average family of four.

As these people raise the greater part of their food themselves and many of them have other jobs beside, it is obvious that the nutmeg area is a very prosperous one. The great number of stone houses that are being built in the villages, the many outboard motors, and the people's clothing are visible signs of this prosperity.



* 10.59 Dutch guilders = £Stg.1 = 2.80 U.S. dollars.

Left: Five-year-old Banda nutmeg under temporary shade (Sesbania). Ground cover is Calopogonium. Right: Shelling and grading Papuan nutmeg.



Map of western Netherlands New Guinea showing areas of the Bomberi Peninsula where nutmeg is grown.

Banda Nutmeg Also Being Planted

It is, however, regrettable that the market for Papuan nutmeg is not firm. A small increase in production of Banda nutmeg could have an enormous influence on the price of the Papuan variety. There is therefore a real risk that the Fakfak population might suddenly fall back from wealth to poverty. It is for this reason that the Agricultural Extension Service (A.E.S.) recommends the planting of Banda nutmeg.

The people show much interest in doing this. From the above-mentioned small plantations of Banda nutmeg, seeds are taken. After six months the seedlings from the nursery are sold to the people very cheaply.

The Agricultural Extension Service is also paying attention to the Papuan nutmeg. The people are inclined to pick the fruits too early, which is one of the main reasons why the New Guinea product is as yet often of an inferior quality. By giving advice as to time of harvest and preparation for export, the Agricultural Extension Service attempts to improve the quality and increase the quantity.

Processing Of Crop

The Papuan nutmeg tree may reach a height of some 65 feet and it yields a crop three times a year. The fruit is ripe when the husk bursts and the red mace covering the black nutmeg becomes visible.

The fruits are sold to the dealers at three to four cents apiece. Mace and seeds are then separated. The mace is dried in the sun and stored in a dark room for some months till the colour has changed from red to light orange. Finally, the product is exported in bags. In the meantime, the nutmeg itself is dried in so-called smoke-lofts under which a slowly smouldering fire is kept burning. The smoke keeps the nutmeg free from insects. When it is dry the shell is beaten off the nutmeg, when it is also ready for export.

Nutmegs harvested while not yet fully ripe are wrinkly, and therefore have a considerably lower value. Nutmegs that have fallen off the tree are often wormy, and also fetch a lower price. If dried too quickly or insufficiently, the nutmeg breaks when the shell is taken off. Again, this means a lower price.

Grading Now Compulsory

In order to enable the New Guinea product to gain a better reputation on the world market, grading of the different qualities has now been made compulsory. "ABC" quality contains the whole and fully-grown nutmegs without any damage. "BWP" means all broken and wormy nutmegs, while the third quality is "Wrinkly Nutmeg." The latter is not yet generally used. "ABC" is fit for direct consumption; "BWP" may be used for grinding, while "Wrinkly Nutmeg" is suitable for the production of volatile aromatic oil, of which it has a relatively higher percentage.

Treatment of the Banda nutmeg is more or less the same as that for the Papuan variety. Regulations for improvement of the Papuan nutmeg will therefore also be effective for the farmer.

Cultivation of the Banda nutmeg is also but an improvement of an already-existing technique.

In the Fakfak area, actually nothing new is undertaken in the agricultural field as is done in other parts of New Guinea, which implies that it is in a very favourable position. It is hoped that with the stimulation of the cultivation of nutmeg, a sound economic foundation for this part of New Guinea is being laid. It is but a matter of time before a reasonably extensive area is planted with Banda nutmeg.

SPC Secretary-General Visits Netherlands New Guinea

The education programme for Papuans being carried out in Netherlands New Guinea, and their training to take greater responsibility in administration, impressed the Secretary-General of the South Pacific Commission, Mr. T. R. Smith, during a visit to the territory from November 23 to December 4 last.

Mr. Smith visited Hollandia and surrounding districts, Biak Island, Valley. He inspected schools, training Manokwari, Ransiki and the Baliem centres, hospitals and various projects for the development of agriculture, fisheries, ship-building, timber production, and roads.

A highlight of Mr. Smith's trip was a visit to the remote Baliem Valley with the District Commissioner of Hollandia, Mr. F. R. J. Eibrink-Jansen, who was making an inspection visit. This valley, accessible only by air, was first visited by someone from the outside world when a United States Army aircraft crashed there in 1945 and survivors were rescued by glider. There are about 60,000 inhabitants with a Stone-Age culture. Their staple food is sweet potato.

The first mission posts were established in the valley in 1954, while Government posts were set up there in 1956. There are now two doctors, several mission schools and aid posts in the valley, and new food crops have been established. At Tiom, at an altitude of over 6,000 feet, there is a school where young Papuans from the coast are being trained as village school teachers to work among the Baliem people.

(continued from page 29)

trainees from Papua and New Guinea, British Solomon Islands, Netherlands New Guinea, Gilbert and Ellice Islands, New Hebrides and the United States Trust Territory are attending. The Bureau of Technical Assistance Operations of the United Nations and the Government of the Protectorate are actively assisting in the project.

The Commission approved in principle a proposal by the Government of New Caledonia that a second course should be set up in Nouméa.

Regional Education Seminar

The Commission recorded its pleasure at the success of the education seminar for the Pacific held under its auspices in November, 1959, at Brisbane, Queensland. It was attended by thirty-one educationists from fourteen Pacific territories and the six metropolitan countries of the Commission. The report and recommendations of the meeting will be published shortly in the SPC Technical Paper series.

The Commission decided to consider holding a further seminar, possibly in 1963, and thanked the Government of New Caledonia for its invitation to hold the meeting at Nouméa.

Pests And Diseases Of Plants And Animals

Since April, 1959, the Commission's entomologist, Dr. C. P. Hoyt, has been in West Africa searching for parasites and predators of the rhinoceros beetle, the pest that is a serious threat to the coconut industry in the Pacific. Under his direction, consignments of selected insects have been transferred by air to infested islands of the region. The Commission warmly commended his work, and decided that he should carry out further field work in East Africa in 1961.

The Commission thanked the Government of Fiji for making available the services of its entomologist, Mr. B. A. O'Connor, as part-time consultant for the Commission's rhinoceros beetle project, and asked that he prepare a region-wide plan of co-ordinated work against the beetle.

The economic development section will continue to circulate useful information on pests and diseases of economic plants in the Pacific, and methods of controlling them.

Literature Production Training Centre

The Commission reviewed the work of its literature production training centre set up last February in Honiara, British Solomon Islands. Twelve trainees from Fiji, Papua and New Guinea, Cook

Islands, United States Trust Territory of the Pacific Islands, Western Samoa and the Solomon Islands, are now attending the first of three one-year courses.

By helping to provide trained staff and by investigating practical problems, the centre will assist territories towards providing their own printed matter to suit their own conditions.

Co-operatives Meeting

During the year the co-operatives officer, Mr. R. H. Boyan, continued his visits to territories to study and advise on co-operatives development.

A technical meeting on co-operatives will be held at Commission headquarters in April, 1961, to provide an opportunity for registrars and equivalent officers to consider problems associated with training and education in the field of co-operation, and to give further study to technical questions arising from the previous meeting held at Port Moresby in 1958.

Women's Interests

The Commission reviewed the work of the women's interests officer, Miss Marjorie Stewart, who since her appointment in 1959 has made working visits to the Cook Islands, Papua and New Guinea, Fiji, Tonga, and the United States Trust Territory of the Pacific islands. Further visits are planned for 1961.

The Commission decided to hold a women's interests training seminar in Western Samoa in August/September, 1961.

Nutrition And Public Health

At their meeting held at Commission headquarters last June the health members of the Commission's expert advisory body, the Research Council, made a special study of the Commission's past work in nutrition and public health. By Commission invitation an eminent specialist in each field attended the meeting as consultant: Professeur Agrégé H. Gounelle of the Centre de Recherches Foch, Paris, in nutrition, and Sir Selwyn Selwyn-Clarke, Secretary of the Society of Medical Officers of Health, London, in public health.

The Commission decided to seek information from Pacific administrations on the possibility of teaching nutrition in schools, and facts concerning nutritional deficiency diseases in their territories.

In the field of public health the Commission has decided to focus attention on health problems such as maternal and child health, environmental sanitation, nutrition, and the development of community health services, and where needed will assist territories with their public health programmes.

Plant Collection And Introduction

The Commission reviewed its work in the field of plant collection and introduction in which for several years special attention has been given to coffee,

cacao, coconuts, breadfruit, pepper, vegetables, bamboos, and forage and pasture plants.

The Commission approved a further grant in 1961 of £500 sterling to the plant introduction station at Naduruloulou, Fiji, which collaborates closely in this work.

Agricultural Extension Services

A meeting of senior officers of agricultural extension services in South Pacific territories will be held under SPC auspices during 1961 to discuss the development of agriculture extension work in the Pacific.

The Commission will also assist agricultural personnel in the Pacific to make inter-territorial study visits.

Fifth South Pacific Conference

The Commission gratefully accepted the offer of the United States Government to hold the fifth South Pacific Conference in July, 1962, at Utulei, near Pago Pago, in American Samoa. (The Conference is a regional meeting of Pacific island peoples convened every three years by the Commission.) It is expected that the meeting will last between two and three weeks.

The Commission approved the agenda for the Conference, which includes the following subjects for discussion by delegates:

- Methods of training Pacific islanders in business methods and practices.
- Ways of gaining interest and support for improving the quality of agricultural produce, and for increasing marketing efficiency.
- The changing role of women in South Pacific territories.
- Ways of obtaining a reasonable balance between social advancement and economic development in South Pacific territories with due regard to labour problems and increasing population.
- The importance of organized adult education schemes in South Pacific territories.
- The importance of relating education to the needs of a territory.

Expanded Rice Production Needed In Fiji

In Fiji, close on 35,000 acres of rice are grown each year, producing a crop worth £1 million. Nevertheless, the Department of Agriculture estimates that in the next five years, a fifty per cent. increase in the acreage will be needed to feed the growing population. To keep pace with subsequent growth, a further increase of 3½-4% per year will be needed.

The Department is giving rice growers active practical assistance in the growing, harvesting, and selling of their crops.

Desiccated Coconut As A Source Of Food Poisoning

An editorial in the *British Medical Journal* for August 20, 1960, draws attention to the fact that desiccated coconut as used by housewives in Britain and elsewhere may contain germs of the *Salmonella* group—the germs responsible for food poisoning—typhoid and paratyphoid. Desiccated coconut from Papua was incriminated in a typhoid epidemic in Australia in 1953, for example.

In Britain, the port health authorities examine one in twenty batches of imported desiccated coconut, and if germs are found a further one in ten is examined. If positives are again found the whole batch is condemned. The possibility of loss of a consignment in this way is therefore a serious matter from an economic point of view, quite apart from the risks to the health of the consumers.

It is almost impossible to trace the source of infection. One unhygienic source may jeopardize the trade of the whole area of origin. Production of bacteriologically safe coconut must depend on the hygiene practised in all plantations and packing factories. There are many opportunities for contamination: the material may be exposed to excremental fouling by humans, animals and birds. *Salmonella* germs grow well in coconut meat and can survive the ordinary desiccating process, involving a temperature of 180° F. for 40 minutes. Experiments have shown, however, that heating to 130° F. for 10 days is probably effective. It is clearly desirable to develop an effective desiccating and sterilizing process which will disinfect the article without impairing the flavour and other qualities for which it is marketed.

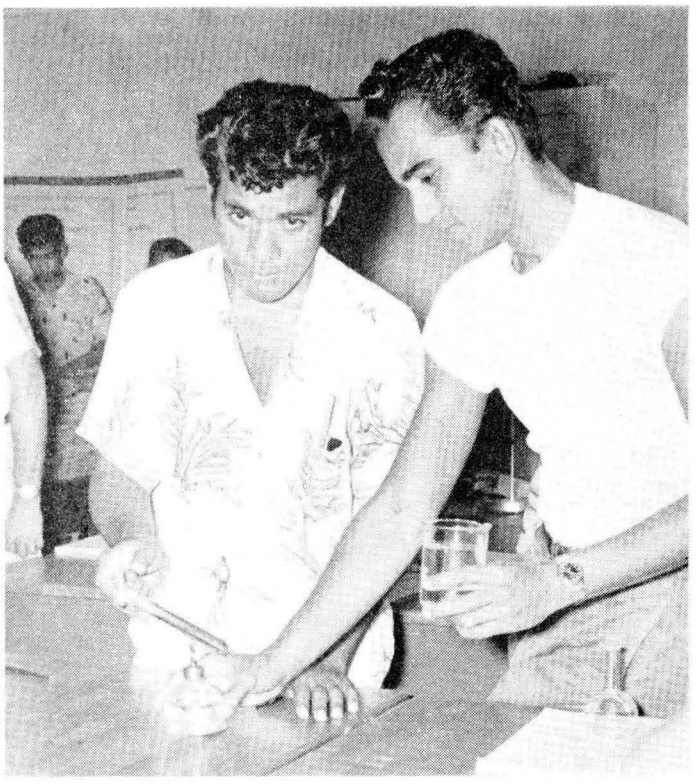
—W.N.-T.

SPC Entomologist To Spend Further Year In Africa

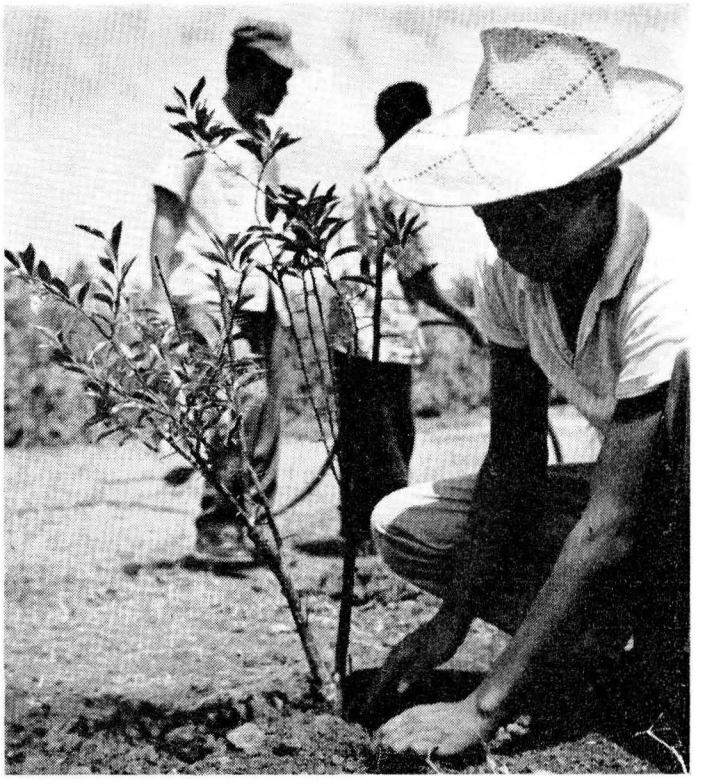
Last October the Commission's entomologist, Dr. C. P. Hoyt, returned to headquarters after spending eighteen months in West Africa collecting predators and parasites that might be useful in the control of the coconut rhinoceros beetle (*Oryctes rhinoceros*) in the South Pacific.

In Nigeria he found three species of insects which preyed on the larvae and adults of rhinoceros beetles, and he shipped large numbers of them to Fiji for distribution to *Oryctes*-infested islands in the South Pacific, where it is hoped they will become established.

In mid-January Dr. Hoyt will again leave headquarters for Africa to continue his search, this time in Zanzibar and in the coconut areas along the eastern seaboard from Mombasa south to Dar es Salaam.



Science students conducting an experiment in the fully-equipped chemistry laboratory.



An agricultural student planting a tangerine seedling on the PICS campus.

The New Pacific Islands Central School

The Pacific Islands Central School, for years temporarily located on Truk, in the United States Trust Territory of the Pacific Islands, has been transferred to new headquarters built at a specially-chosen location near Kolonia Town, on Ponape.

By DAN PEACOCK*

STUDENTS are not normally noted for the eagerness with which they return to school following a vacation. But Micronesian students are perhaps a bit different in this respect, and at the beginning of the last school year all selected to enrol at or return to the Pacific Islands Central School would gladly have arrived early, could the thousands of miles that the ships and planes of the Trust Territory of the Pacific Islands must travel have been shortened. For last year, these students were lookintg forward to seeing an entirely new school and campus about which they had heard over the months and years required to clear the land, lay the roads, and construct the buildings of concrete and steel.

When the 140 students from the scattered islands of Micronesia first arrived at the new school, their exclamations of approval at what they saw were audible, but not always understandable, for superlatives come more easily in one's native tongue. However, when they settled down to write their first composition—on their new surroundings—their English teacher was both delighted and dismayed to find that the adjective "beautiful" recurred entirely too often! And, in truth, dormitories with both privacy and comfort, a spacious dining hall equipped for recreation as well, a completely electric and modern kitchen, a library with room to browse and books enough for any need, and a sprawling green campus can be things of beauty to boarding school students anywhere.

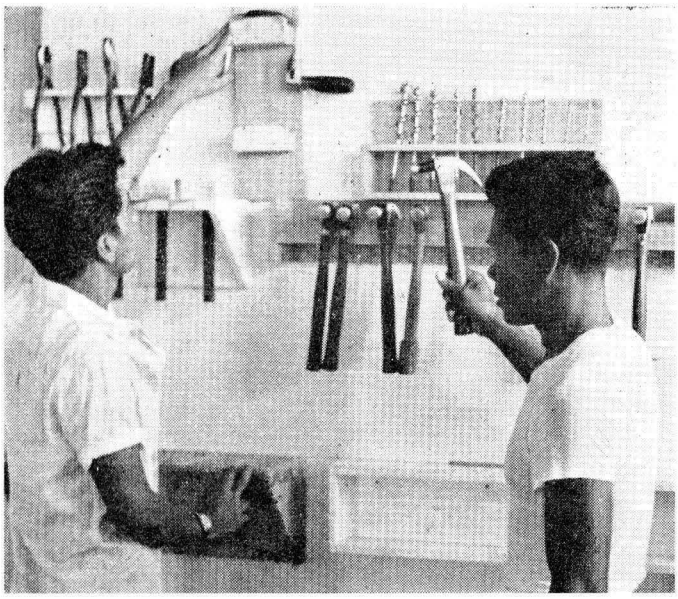
Yet students and faculty alike remain aware that the provision of a new plant, however attractive, does not in itself solve all of the problems of secondary education in this Trust Territory, nor imbue its graduates with any greater worth to their home communities by sole virtue of their having sat at newer desks in more stately halls. The challenging purposes of education remain; the new environs should, at the least, eliminate frustrations that have long stood in the way of the realization of these purposes.

Agriculture Of First Importance

Primary among this Trust Territory's programmes of education and economic development is that of agriculture. At its old location in the Truk District, the school was housed in quonset huts inherited from the former naval Administration, in what, for Micronesia, was an essentially urban and not a rural setting that did not lend itself to the applied study of Agriculture.

Administrators and educators, including the High Commissioner, Delmas H. Nucker, and the Director of Education, Robert E. Gibson, agreed, and Micronesians concurred, that the new location should be rural enough to provide ample farm land, yet be close to a District Centre which could economically provide the necessary utilities, maintenance and medical care, and where students would

* Mr. Peacock, now teacher-librarian at PICS, was formerly Educational Administrator in the Palau District of the Trust Territory.



Woodwork and mechanical class students replacing tools in racks at the end of an instruction period.

Below: Front view of the auditorium and cafeteria building.

be within walking distance of their respective churches.

Such a location was found on Ponape, in the Eastern Caroline Islands. It is the second largest and most agriculturally-minded island in the Trust Territory. The new school site is above the District Centre at Kolonia Town, and at the foot of the interior mountains.

Nearby is the District's Agriculture Station, a virtual botanical garden and thriving research centre.

And there is land aplenty. Already numerous fruit trees have been planted and bounteous crops of sweet potatoes and tapioca are growing which will not only provide students with staple items of their diet, but will, along with numerous other crops, provide a balanced programme of studies for Agriculture majors. This programme is headed by Trust Territory veteran Leo Migvar, who is a recent graduate of the outstanding School of Tropical Agriculture at Trinidad, and is at present Acting Principal of the School.

Bordering the school is a fast-running stream, and understandably, students from riverless atolls and more arid high islands find it the most interesting and inviting landmark on the campus. A group is now at work building a dam which will provide an ideal swimming place.

This is but one of several work projects in which all students participate daily for, of course, they tend their own dormitories, cafeteria, and campus. Nor is this considered a minor part of the student's life, but an activity to be evaluated and accredited along with more academic pursuits.

Full High School Curriculum

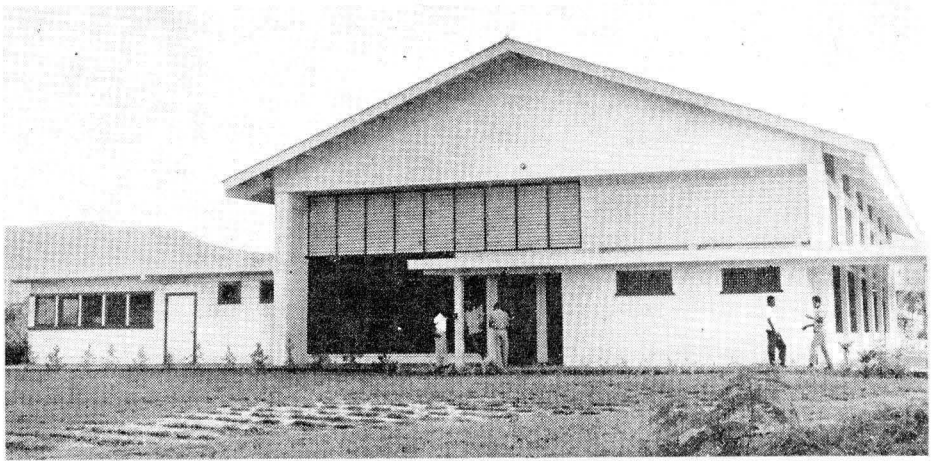
With the administering agency providing several scholarships each year to outstanding Micronesians, most of whom were former students at P.I.C.S., the decision was made as the school entered its new campus to offer a full high school curriculum. Thus, it was felt, Trust Territory students entering the Territorial College at Guam, the University of Hawaii, or other institution of higher learning could do so without apologies for vital omissions in academic preparation. Yet terminal education is attempted for those who cannot enter into further schooling after leaving P.I.C.S.

For the first time the school is providing a complete curriculum in commercial subjects. After visiting the trading companies and other business activities of each of the districts, Dr. Harm Harms of the Territorial College, and Augustine Moses, the first Micronesian to be employed as a full-time instructor —he obtained his degree in business administration in the Philippines—designed a programme of studies that will surely equip future graduates to fill some of the need for qualified employees in this important field. Similarly, Mr. Daniel Sammet has acquainted himself with the problems of boat building in much of this territory, and is now incorporating his findings into his programme of industrial arts which a student may elect as a major.

The 27 girls enrolled at P.I.C.S. also have their opportunity to learn practical subjects along with academic courses. Most of them are enrolled in Home Arts courses which, under Miss Emi Mukaida, provide instruction in such basic areas as child care, sewing, weaving, nutrition, and health education.

Fully-Equipped Chemistry Laboratory

For many students, the most interesting building on the new campus is the Science Building. Here students have their first fully-equipped chemistry laboratory. Mr. Robert Sutcliffe of Philadelphia has been delighted to see them take to the subject like modern-day Lavoisiers. Indeed, it is the hope of the faculty that one day a P.I.C.S. graduate might do for his homeland what a scientist like George Washington Carver did for his.



Visitors to the campus in March would have been impressed by a display of designs created by the senior students in Mrs. Elaine Migvar's geometry class. That students have mastered this new and difficult subject is attested to by the skilful way in which these students employed their compasses and protractors to execute such appropriate designs as those entitled "Trochus Shell Sketch", and "View from My Window at P.I.C.S."

Probably the greatest contribution P.I.C.S. makes to its students is not new at all, but has been part and parcel of the institution for many years. The matriarch of all Trust Territory educators, "Ci" Pickerill, stated it herself in the April 1954 issue of the *SPC Quarterly Bulletin* when she said that in spite of the many cultural and linguistic differences among Micronesians . . . "they are learning, as the teachers are, that human beings are more alike than they are different, and that the differences should be respected".

P.I.C.S. students *do* learn to respect each other, and it would come as no surprise to former faculty members and students to learn that a Yapese student from the district with the fewest number of students enrolled was elected President of the Student Body. He was not chosen because he was the "favourite son" from the district with the most votes, but because he had won the respect of his fellow students from the districts with larger enrolments by virtue of their greater population. He had had ample opportunity to prove his ability in the classroom, on the playing field, in the performance of work details, and in the social life of the campus. And his fellow students had had ample opportunity to make their choice through the processes of their student government and guided by their own constitution.

Thus the process of choice, so vital to democracy, is an essential part of P.I.C.S. Students choose most of the subjects that they will pursue, their associates, and their leaders.

Dedication Of New School

That the administering authority is vitally interested in the future lives of the students and the preparations that P.I.C.S. can give them could not have been made more vivid than by the importance attached to the completion of the new school and its dedication.

Symbolically, both Americans and Micronesians participated, from the Secretary of the Interior, the Honourable Fred A. Seaton, to the President of the Student Body. In the course of the dedicatory programme, the High Commissioner presented awards to the workmen through whose skilled hands the dreams and plans for a new school had become a reality. Thus, from the very beginning, significant and tangible recognition was given to those who applied their learning that others might learn.

The platform from which memorable dedicatory addresses were delivered has since been the scene of considerable student oratory ranging in variety from Shakespeare to a debate concerning the ultimate disposition of the school's store, whether as a co-operative or a corporation.

From the stage that is P.I.C.S., with its backdrop of mountains and its itinerant actors from the tiny islands of the Western Pacific, the audience, whether from Washington or the United Nations, will surely find a great deal that they can applaud in the future. Should the acting be occasionally off cue, the beauty of the theatre and the sincerity of the performance should assure a favourable review.

SPC Boat Building Trainees Making Excellent Progress

(continued from page 34)

thus truly represents an international co-operative effort."

Addressing the trainees shortly before declaring the Course open, Sir John said that they had been chosen by their countries to go there and improve their craftsmanship. "If you seize this opportunity and put it to the best advantage you will be doing something not only to help yourselves, but to help your people", he said, "since it is expected that when you return home you will be able to pass on what you have learned to others. This places on you the duty to work hard, to learn thoroughly whatever is taught you, and to return home determined to share with others the benefit which you have gained."

LOYALTY ISLANDERS RUN MARE–NOUMEA CARGO SERVICE

By L. F. RUMEN and R. H. BOYAN*

THE M.V. TUNO runs regularly between Nouméa and the island of Maré in the Loyalty Group. This small ship, 46 feet long, carries copra and other products to Nouméa and returns to Maré with consumer goods.

The story behind the running of this vessel is that in 1956 some copra producers of Maré decided to form a co-operative. They needed a small vessel to send their copra to Nouméa, and 76 people pooled 414,700 Pacific francs (£stg.1,667/2/9 at current rate of exchange). A further 200,000 francs (£stg.804/0/5) was loaned to them by the Self-Help Society of Maré. Following this evidence of good faith, the Credit Society of New Caledonia loaned 1 million francs to enable an order for a vessel to be placed with Capricorn Charters, of Maryborough, Queensland.

It was decided that the vessel would be powered by a 6-cylinder Gardiner engine of 75 h.p., giving a working speed of eight knots.

The TUNO began her service between Maré and Nouméa in June 1958. Although damaged in a bad tropical storm and out of action for a short time, she has maintained a very reliable service. Running time for the one-way voyage is 13 hours.

M.V. Tuno beached in the Baie de la Moselle near Noumea for painting between tides.

The people of Maré are proud of their ship and keep it in good order. The accompanying photo was taken in April 1960 when the TUNO was beached in the Baie de la Moselle near Nouméa for painting between tides.

Operating surpluses are being used to pay off the two loans, and it is the hope of the people that they will be able to purchase a second boat later.

* M. Rumen is Assistant Co-operatives Officer, Ministry of Co-operation, New Caledonia; Mr. Boyan is Co-operatives Officer, South Pacific Commission.

Teachers and staff who attended the health education course on Saipan.

Teachers Attend Health Education Course On Saipan

A course in health education was recently held in Saipan for school teachers. The Commission's health education officer, Miss Leonie J. Martin, conducted it. She collaborated in the preparation of this account with the five teachers who acted as group leaders . . .

MARIANA ALDAN, SANTIAGO MAGOFNA, FELIPE SALAS, FELIX RABAULIMAN and JOSE TAITANO.

WE believe that good health is one of the most important things in the lives of young and old alike. And so, when a three-week health education course for Saipanese teachers was arranged from June 13 to July 1 last at the Intermediate School at Chalan Kanoa, we gladly welcomed the opportunity to learn more about health.

All Saipanese teachers from both primary and intermediate schools attended the Course, including those from

Health Education Course For Saipanese Teachers: Participants

Staff

Mrs. Eloise JOHNSON ..... Director of Summer School
Mr. Wm. REYES ..... Asst. Director of Summer School
Mr. Bob DREW ..... Acting Educational Administrator
Mr. Nick PALACIOS ..... Assistant to Miss Martin
Mrs. Carol DREW ..... Resource for Group I
Miss Beverley NELSON ..... Resource for Group II
Miss Myrtle HOLMSTAD ..... Resource for Group III
Mrs. Eloise JOHNSON ..... Resource for Group IV
Miss Leonie J. MARTIN ..... Health Education Officer, South Pacific Commission

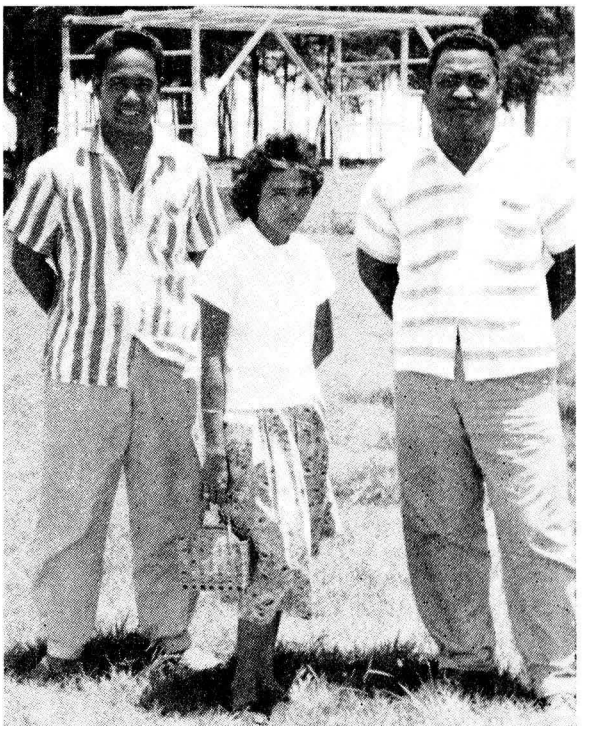
Medical Practitioners

Dr. C. CABRERA
Dr. Jose CHONG
Nurse (Mrs.) Namiko CAMACHO
Dr. B. KAIPAT
Dr. Francisco PALACIOS
Health Inspector Jose SEAMEN
Dr. Jose VILLAGOMEZ

Teachers

GROUP I Grade levels 1-2	GROUP II Grade levels 3-4	GROUP III Grade levels 5-6	GROUP IV Grade levels 7 and above
Cecilia P. TENORIO	Maria C. ALDAN	Francisco S. CHONG	Rudy M. SABLAN
Maria B. AGUON	Margarita SANCHEZ	Juan T. CABRERA	Vicente SANTOS
Maria SABLAN	Ana G. CABRERA	Felix R. FITIAL	Louis LIMES
Rosario ELAMETO	Ana R. ALDAN	Jesus R. FAISAO	Jose TENORIO
Teresa I. TAITANO	Frederica VILLAGOMEZ	Augustin TAITANO	Juan CRUZ
Remedio CASTRO	Joaquin M. AGUON	Francisco SABLAN	Ricardo VILLAGOMEZ
Magdalena S. CELIS	Estella M. PANGELINAN	Carlos REYES	Henry CRUZ
Delfina I. GUERRERO	Sulveria T. CASTRO	Jesus T. SABLAN	Ines TELLEI, Palau Is.
Innocencia TENORIO	Jesus SN CABRERA	Francisco KAIPAT	Leon TAISAKAN, Rota Is.
Joaquina RABAULIMAN	Margarita S. CABRERA	Eugenio REPEKI	Elias ELIASA, Ponape Is.
Hilaria B. KISA	Roman VILLAGOMEZ	Felipe SALAS (Group Leader)	Net SANGAU, Truk Is.
G. HOFSCHNEIDER	Lorenzo CABRERA	Felix RABAULIMAN (Group Leader)	Takaji ABO, Marshall Is.
Susanna VILLAGOMEZ	Maximino TAITANO		Jose TAITANO (Group Leader)
Mariana ALDAN (Group Leader)	Carmen PANGELINAN		
	Santiago MAGOFNA (Group Leader)		

The members of Group IV (Grades VII, VIII, IX). Mrs. E. Johnson, Director of the Summer School and resource person for Group IV, is at the extreme right, while the group leader, Jose Taitano, is second from left, front row.



Three of the group leaders (left to right), Jose Taitano, Mrs. Mariana Aldan, and Felix Rabauliman.

Tinian and Pagan Islands. In addition, we were glad to welcome five teachers representing other districts in the Trust Territories.

The purpose of the Course was to teach us some health facts, and to help us to develop from them lessons that we could use with our own classes. So we had also to learn how we could teach these facts at a level suitable for our grades. Out of all these lessons, we will later on be able to develop a health education curriculum for our schools.

The South Pacific Commission sent Miss Martin, their Health Education Officer, to Saipan for four weeks to help with this work. She was able to plan with the staff members here for the way the Course was to be run.

Mrs. E. Johnson, the Director of the Summer School*, Mr. W. Reyes, Assistant Director, Mr. R. Drew, the Acting Educational Administrator, Miss M. Holmstad, and Mr. N. Palacios, were chiefly responsible for the organisation.

Mrs. Johnson and Miss Holmstad, together with Miss Nelson and Mrs. Drew, worked closely with the teachers as "resource persons" for the four discussion groups, to help the group leaders, to provide information, and generally to assist in any way they were needed. But most of the direct responsibility fell on the teachers themselves.

Course Procedure

The way in which the Course was planned and conducted was new to Saipan. Through the co-operation of the medical staff, a Saipanese Medical Practitioner visited the class each morning. For the first hour he would lecture on some aspect of health which was felt to be of major importance in this area. Such subjects as tuberculosis, roundworm, eye diseases, and other illnesses of major importance were considered.

After the lecture, the teachers worked in groups (according to the grade they taught), each group working out a lesson suitable for its grade level from the material given by the Practitioner. The Practitioner went round helping each of the groups with their own special problems or questions on the general subject.

Then, later in the day, one of the groups would demonstrate to the rest how its lesson would be given to the children. In each group, one Saipanese teacher was made group leader, and as such was responsible for seeing that the group produced a lesson from the facts we were given. It was hard for us at first to work in this way, since we were more accustomed to working individually. But it certainly made us accept responsibility, and we can be glad that the lessons have been done by our own efforts.

Visual Aids

In the afternoons most of the time was spent on visual aids. We learned how to make and use a number of these, and each group made suitable aids to illustrate the lesson they had prepared during the morning.

We consider ourselves fortunate to have had our own Medical Practitioners to help us. From them we were able to learn a great deal about the health problems that are important to Saipan, and the ways in which we can help to overcome these. Besides teaching the children we hope to be able to help our own communities to understand and to practice better health measures. We hope that this association between practitioners and teachers, so happily begun, can be continued in the future.

It was very hard at first for us to understand and accept these new ways of working that were introduced. Many of us felt very lost, and did not know what was expected of us. But gradually, as we began to help each other, and to lose our strangeness, we began to see that we could learn much, not only from the instructors, but from each other. Most of us felt enriched, not only in classroom material, but in knowledge for ourselves and for our communities. This course can help, then, to promote a better standard of health for all the people, not only for the schools. But our classroom lessons will be better, too, because we have had the opportunity of working together to make these lessons about the things that are important to us.

We hope that we may, at some future time, have more courses like this to help us with our health work.

* The Course in Health Education was one of the three courses for Saipanese teachers comprising the Summer School.

PICTURE CREDITS

Acknowledgement is made for illustrations reproduced in this issue as follows: Front cover photo, E. P. W. Marriott; pages 20 (upper), 21, 22, H. van Pel; 20 (lower), W. R. Meredith; 30, 31, 32, F. C. Cooke; 35, 36, A. M. O. Joseph Marsau; 37, 38, 59, R. H. Boyan; 39, 40, 41, J. H. A. Coenen; 50, 51 (bottom), Netherlands Official; 57, 58, Trust Territory Official; 60, 61, Leonie J. Martin; 64, Fiji Official; 66, N.Z. Official.

New Interests For Aitutaki Women

(*continued from page 44*)

lack of water and the scavenging of fowls, are caring for little gardens, growing cabbages and other vegetables for their children.

The Health and Agriculture Departments have assisted by giving illustrated talks. Baby care and pre-natal care, and other health topics as well as hints on gardening have been given. Mary has prepared a recipe book in English and Maori which is now being printed, while a garden competition has just been held.

The Child Welfare people have been raising money for their recent Baby Show.

Classes in sewing have also proved popular, and such things as patching, darning, setting collars, fastenings, pattern drafting, school rompers, men's trousers and smocking have been tackled.

Nikaupara became so interested that they bought a sewing machine for £25. So far they have paid £15 by running dances, a *tere* party and selling coconuts. Their President, Mrs. Jack Neil, is enthusiastic about the uses of the machine. She has ideas of making *tivaevaes* on it and selling them, and of allowing people wishing to make their own dresses to use the machine for a small fee.

Carpentry Classes

Perhaps the most hilarious meetings are those recently started on carpentry. Food safes and storage cupboards cost too much money for most families, who feel they are not essential.

Mary made samples out of meat and milk boxes—a food safe with a screen door, and a cupboard with pandanus or material curtains. Then one day twelve women began sawing, hammering, discussing the length of legs, amount of netting needed, etc. One energetic member halved a lot of old 2" x 2", so that there would be enough timber for all the legs. A few struggled for a long time cutting out the holes for the hinges, their only tools being a screwdriver, knife and hammer.

Carpentry has become a major project, and whenever a boat comes in the shopkeepers are beseiged by women trying to get hold of empty boxes.

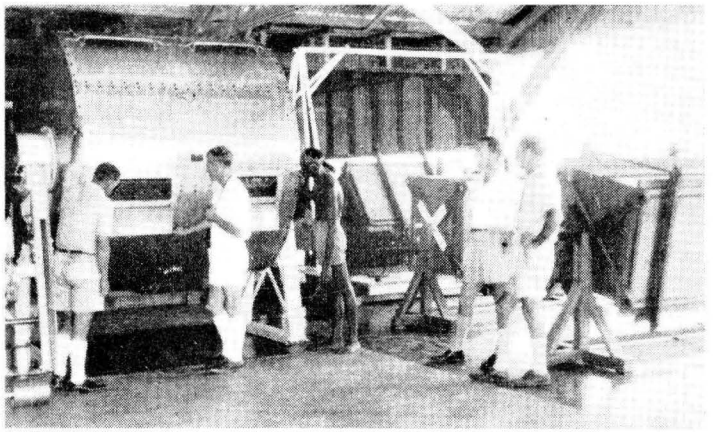
Stools made out of milk powder tins, packed around with coconut fibre and covered first with sacking and then with pretty material, are also easily made, and are to be seen in several homes. Three women and two boys at the Hanson Leper Colony have been particularly thrilled with their carpentry. Mary finds time each week to visit them and show them how to make things, or just talk to them, and nowhere are her visits more eagerly awaited.

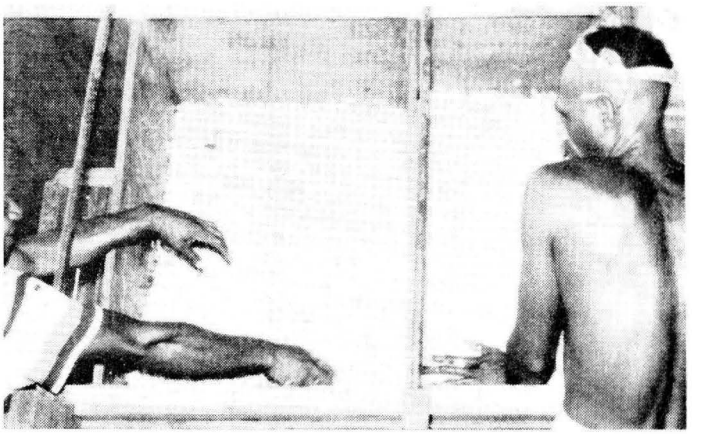
Cooking, sewing and carpentry — it may not seem much to anyone used to European rush and scurry. To Mary, who waited five months before being invited to address the women of one of the outer villages, the results should be encouraging.

New clubs have been formed, old ones have been revitalized.

In spite of difficulties of remoteness and lack of materials, and the distractions of boat days or citrus picking and packing, the groups continue to meet. The foundation has been laid, the interest has been aroused. The leaders are beginning to realize the possibilities opening for them. With expert guidance they will go a long way towards a fuller participation in the life around them.

Certainly "Miss Mary" has won for herself a warm place in the hearts of these women.





Above: Interior of the cocoa bean fermentary on the Mac. Robertson plantation near Lae. At right are rotary fermenting boxes. Right: Beans just extracted from cocoa pods being fed into a rotary fermenting box. At this stage they are a sticky, glutinous mass.

Improved Fermenting Box For Cocoa Beans

WITH a view to improving the quality of New Guinea beans a fermenting box has been developed at the fermentary at Mac. Robertson's "Wanaru" cocoa plantation near Lae.

The process of fermentation is essential in the development of chocolate flavour in cocoa beans. When taken from the pod the latter are white in appearance and are covered with a glutinous mass. This is removed during the fermentation process, when a characteristic chocolate flavour is developed.

In New Guinea the normal fermentation process is carried out in wooden boxes set on a floor, with suitable drainage underneath. Fermentation continues for from five to seven days. During this period the beans are turned over from one box to another in order to aerate the mass and mix the beans. This procedure is necessary to develop fully the chocolate flavour characteristic of the beans.

This method requires a good deal of labour, and there is some evidence indicating that it gives variable results. Experiments were therefore put in hand to reduce the labour and to develop a fermentation box providing fully controlled results.

The new method employs a fermentation box which revolves on its axis to mix and aerate the beans during the fermentation process. This varies from

the generally-accepted techniques for cocoa fermentation using fixed boxes or the "heap" method.

Using the "Wanaru" rotary box labour is minimized, and it is believed that better temperature control is obtained within the fermenting mass, resulting in better, more uniform fermentation.

The "Wanaru" box is essentially a heavy, wooden-framed box approximately 5′ x 3′ x 3′, with ends and two sides made of plywood. The third side consists of wooden slats made from heavy wood with a gap of approximately ¼″ between each lath. This keeps the beans in the box while the liquid produced during fermentation freely drains away.

The fourth side of the box is left open for charging the latter with beans. A heavy plywood top can be fitted into position to close the box when loaded. Stub axles are fitted at each end of the box, which is mounted on two wooden trunnions. This enables the box, in position and packed with beans, to be rotated as required during the course of fermentation.

Lady Maddocks (centre), wife of the Governor of Fiji, with Fiji delegates to the Pan-Pacific and South-East Asia Women's Association Conference being held in Canberra in January. Left to right, standing: Edith Houng Lee, Mona Chang, Ilisapeci Inia, Mavis Prasad, Sainimili Kikau, Mrs. Nandan, Salote Sikivou, Gladys March, Reijieli Komaisavai. (Sitting): Marama Sovaki, Tulia Koroi, Lady Maddocks, Lolohea Waqairawai, Mereula Guivalu.

Fiji Delegation Attends International Women's Conference In Australia

A REPRESENTATIVE delegation of twenty women from Fiji led by Lolohea Waqairawai, B.E.M. (who was the Colony's sole delegate to the Eighth Conference in Tokyo) is attending the Ninth Conference of the Pan-Pacific and South-East Asia Women's Association at Canberra from January 7-18.

The theme of the Conference is "Education for Women in a Changing World," and Fiji, like other national associations, will contribute to a programme built around it. To enable its delegates to participate in the discussions, study-groups, talks and lectures, member organizations of the Fiji Association have helped to prepare papers, under the supervision of the National Committee, which will give other delegations an intimate view of Fijian family life and an appraisal of the basic economic and social conditions in the Colony.

The promise of the Conference is that it gives women from the many countries represented on the Association the chance to meet and exchange ideas and experiences formally and informally; it offers them help in breaking the barriers of distance, language and customs and to meet in understanding and common bonds of trust and sympathy.

The Fiji delegation goes to Canberra to learn how other women from other places meet and overcome their problems; how they come to recognize and satisfy their needs; and perhaps to contribute something from its own small experience.

EDITOR'S NOTE: The South Pacific Commission will be represented at the above Conference by its women's interests officer, Miss Marjorie Stewart.

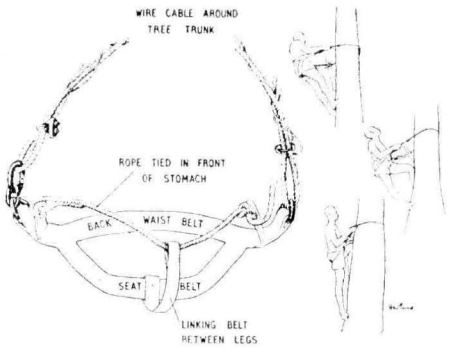
Safety Harness For Climbing Palm Trees

THE harvesting of the fruit from palm trees is a most important matter in the economy of West Africa, and accidents due to falling from a tree often have the most serious results, immediate death being by no means rare. Broken neck or back is a frequent outcome often complicated by paraplegia, a most distressing state for the patient and presenting a major transport and nursing problem. The more fortunate victims reach hospital, but the others are left to endure agonies of distress in their own homes till death relieves them. Once in hospital the patient remains there, often to occupy a bed for a very long time. This form of accident therefore has important consequences, in the financial field as it affects the producer and the health services, and in the humanitarian field as it affects the individuals at risk.

Though large plantations are now cultivating short types of tree which do not necessitate climbing by the harvester, the small farmers, who are greatly in the majority, still live by their tall palms, and will continue to do so for many years.

Most tree-climbing in West Africa is done with the aid of an encircling vine cut from the bush. The girdle consists of one or more strands bound together with string or natural binding material in an apparently carefree manner. The ends of the girdle have to be separated each time, and once the tree is encircled the ends are bound together or knotted. Accidents happen for three main reasons: (i) breaking or giving way of the girdle; (ii) severing the girdle with the cutlass which the climber uses for cutting the fruit; and (iii) a slip due to wet weather, foolhardiness, or fright from an animal, snake, or insect up the tree.

The main essentials of a suitable harness are that it should be easily constructed, be made from materials readily



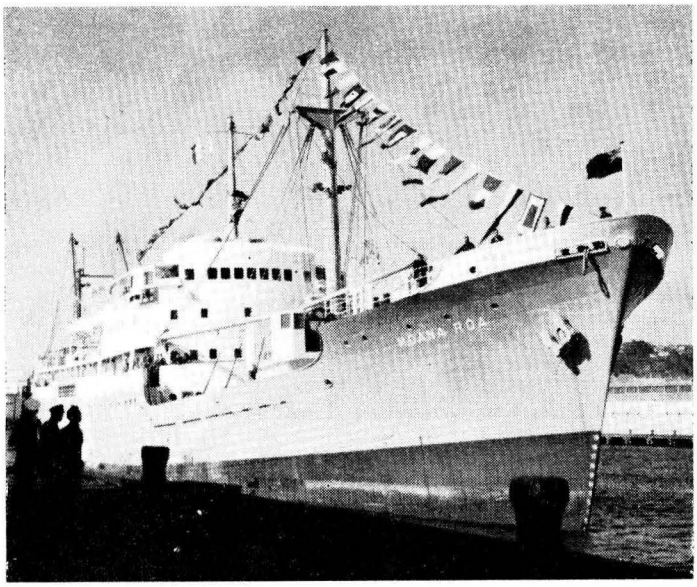
obtainable in most parts of the tropics, and be acceptable to those who had to use it.

To satisfy the first two essentials, canvas is easily available in most places, and was therefore considered suitable for the body harness section of the apparatus, and wire cable, of which some is to be found almost anywhere, for the tree sec-

tion. Filed chain links join the harness to the wire cable on which loops are made by means of bulldog clips. The harness consists of two straps, one for the waist and one under the buttocks. A third strap passes between the legs and is attached to a rope belt in front. The wire cable may be stiffened if desired by twisting a piece of steel wire round it. The user may detach the cable from the harness when walking to another tree, without removing the harness and rope belt.

The cost of this apparatus should not be expensive to the individual, as every material used is reasonably available and little skill is required in making it up. On plantations with engineering facilities it should be very simple to produce, and the little expenditure involved will rapidly repay itself in fewer accidents and much less time spent in hospital or money paid in compensation. In practice it has been found that the apparatus is acceptable to practically all the harvesters, though with some it is not what "they were used to use" and therefore not acceptable at present.

[The above is an abstract of an article by Mr. P. H. Newman and Dr. C. Wilson that appeared in the *British Medical Journal* for August 20, 1960.—W.N.-T.]



The "Moana Roa" berthing at Wellington after her maiden voyage from Britain.

Replacement For "Maui Pomare" Now In Service

The New Zealand Government's new £800,000 motor ship *Moana Roa*, which has replaced the 30-year-old *Maui Pomare* in the New Zealand-Cook Islands service, arrived at Wellington last October after her eight-week maiden voyage from Britain.

A 3,000-ton refrigerated passenger-cargo ship, the *Moana Roa* was built in Scotland. She sailed to New Zealand via Panama and discharged her first cargo at Rarotonga in the Cook Group, which will be her regular port of call. There she was given a tremendous welcome, and almost the entire population thronged the beaches to watch her anchor. Later a feast was held in her honour.

New Bulk Oil Installation For New Hebrides

The new bulk oil installation to be built this year at Santo in the New Hebrides by the Shell Company of Australia will mean substantial decreases in the prices of petroleum products due to greatly decreased distribution costs.

Tankers from Singapore will supply bulk products to the installation, replacing the present arrangement under which supplies are brought by drum from Suva.

Construction of the installation will commence in April. It is expected to take about eight months and cost around 24 million Pacific francs (£stg. 96,000). The installation, with a storage capacity of over one million gallons, will handle three products—motor spirit, lighting kerosene and dieseline.

Blindness In Western Samoa

Samoa has the highest incidence in the world of an eye disease known as *pterygium*, according to a report recently published by the Ophthalmological Society of New Zealand. This disease, the report states, is responsible for no less than a sixth of all the cases of blindness in the Group. It is aggravated by continued exposure to strong sunlight, especially when reflected off the sea, and is therefore commoner among fishermen.

In Samoa it seems that some of the herbal eye medicines used by the people may be actually harmful, and their widespread use may be increasing the seriousness of the situation. The report concludes by recommending a specialist ophthalmic service for Western Samoa.

SPC Women's Interests Officer Working In Papua And New Guinea

On November 30 the Commission's women's interests officer, Miss Marjorie Stewart, arrived in Port Moresby for her third working visit to Papua and New Guinea in two years.

She will spend three months in the territory, her objectives being threefold. Firstly, she will continue a series of training courses for women leaders started on a previous visit; secondly, she will visit four rural areas to study how women's activities can best be organized there; and thirdly, she will work with the Division of Extension Services and the staff of the Social Development Section in planning training programmes and supporting teaching aids for rural centres.

Before her arrival in Papua and New Guinea, Miss Stewart spent a few days in the British Solomon Islands making a short survey of women's activities prior to returning there for a working visit after completing her present assignment.

Earlier she had spent six weeks in Tonga helping to conduct courses for women's leaders from villages scattered throughout the Kingdom.

Pilot Project To Establish Village Cattle Herds

A pilot project to establish small cattle herds in village communities in the Highlands has been started by the Department of Agriculture in Papua and New Guinea. The first village herd comprising four cows and two calves was delivered in September to the Kapugumarigi people, near Goroka. On their success in handling the stock will depend the extension of the scheme to other village communities.

Under the scheme, at least four villagers must each purchase a cow. A bull for the herd is then supplied free by the Department of Agriculture. The owner must provide a small bail and calf pen, each with a cement floor, and a properly fenced five-acre paddock. The stock will be grazed on adjoining land during the day.

Villagers purchasing cattle are being given special training at the Government Livestock Station at Goroka before taking delivery of their stock. This station has been regularly selling pure-bred Canadian Berkshire pigs to villagers to raise the standard of local pig herds. The new cattle scheme is intended to test the possibilities of extending village agricultural activities to the raising of cattle.

PACIFIC READING

Material in this section is contributed by the South Pacific Commission Literature Bureau. Any enquiries relating thereto should be directed to Box 5254, G.P.O., Sydney, Australia.

Notes and News

New Publications

During recent weeks the Bureau has been able to advise and assist in the production of several small booklets for use in Papua and New Guinea. Although intended primarily for use in Melanesian areas, we feel that these publications will be of considerable interest in other areas of the Pacific as examples of low cost printing techniques using small offset equipment. Each book has been produced by methods similar to those in operation at the Commission's Literature Production Training Centre at Honiara and is indicative of the possibilities and scope of this type of equipment in producing reading and educational materials.

Women's Club Booklets. In "Notes and News" for October 1960, reference was made to the production of *Book 1—Things to Do in Women's Clubs*—the first of four books prepared by the Women Welfare Officers, Department of Native Affairs, Port Moresby, to assist club leaders in planning their work. The three remaining books in this series have now been completed, each covering a further three-month period. As with Book 1, the material is presented in the form of weekly meetings and provides information on club procedure, things to make and do, health and homecraft talks, games to play and other matters so essential to a well-run club. Each book is attractively printed in two colours—a different key colour being used to provide easy recognition—and the text is well illustrated with many line drawings.

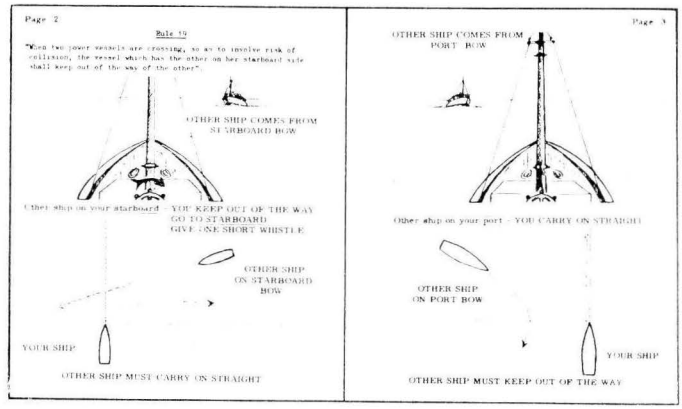
Agricultural Booklets. Two agricultural extension booklets entitled *Let's Make Good Copra* and *Grow Good Coconuts* have been produced on behalf of the Department of Agriculture, Stock and Fisheries, Port Moresby. These books are similar in size and appearance to the already well known *Let's Grow Peanuts* and are available in English, Pidgin and Motu editions. The basic text and illustrations for each book were prepared by the Department of Agriculture while the Bureau arranged production details. As the titles suggest, *Let's Make Good Copra* details the correct methods of producing high-grade copra and includes constructional details of a suitable hot-air copra drier; *Grow Good Coconuts* explains the need for good coconuts and describes how to make a nursery, choose right seed nuts, select and plant the strongest seedlings, and then take care of the growing palms. Each book is illustrated with two-colour line drawings.

Specimen copies of these books, with details of production costs, are available on request from the Literature Bureau, Box 5254, G.P.O., Sydney, by courtesy of the Department of Agriculture, Stock and Fisheries, Port Moresby.

Steering and Sailing Rules. The full title of this book is *A Guide to the Steering and Sailing Rules for Ships under Way and the Use of Distress Signals at Sea.* To quote the Foreword—"This little book has been written by Capt. G. W. Sharp of the B.S.I.P. Marine Department to help Melanesian seamen who do not understand very much English. It explains the basic rules of safety at sea that everyone must

understand thoroughly if he works in a ship at sea. In each case the International Rule is quoted, and then explained in a set of pictures with captions in simple English."

In the book each Rule is illustrated by a picture in black and white indicating the relative positions of ships at sea, while the proper directions of their subsequent movements



Typical pages from "Steering and Sailing Rules".

are indicated in red. This method, combined with the simple, short, and unambiguous instructions, results in a most graphic and effective guide.

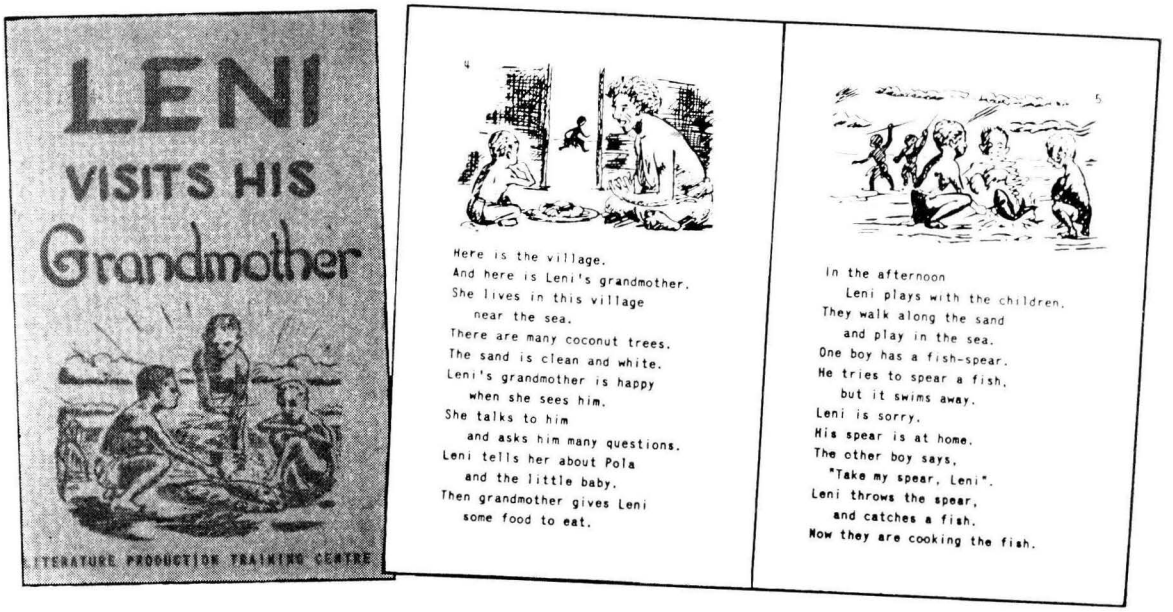
The book is published under the authority of the Marine Department, British Solomon Islands Protectorate, and was produced by the Commission's Literature Production Training Centre in Honiara. Illustrations are by one of the trainees at the Centre—Teararoa Ariki. Copies are not available from the Literature Bureau in Sydney, but it is believed that anyone interested would be able to obtain a specimen copy from the Marine Department in Honiara.

The book is an excellent example of the way a Literature Production Centre can assist departments to meet their urgent needs; and we feel that this is a book which could be of the greatest interest and value to all island territories where so much depends on safe shipping services.

LEISURE READING FOR CHILDREN. What do children read at home? This question has often been the subject of enquiry in such countries as Australia or England or France, etc. But it is to be feared that the answer in the Pacific islands must inevitably be "not very much", and if we say "very young children" instead of just children, then the answer may be "nothing". The reason is that there is little if anything suitable for very young children to read. The causes of this are complex: there is a language and a subject problem; allied with these there is a market problem; and taken together these all result in a cost problem—incomes in the Pacific do not enable parents to buy expensive books for their children. Yet one feels that the difficulty of these problems is no excuse for ignoring them. It might even be that better possibilities for leisure reading might pay good dividends in better performance and more rapid progress in school.

The Literature Production Training Centre in Honiara has put out an interesting series of books which are so cheap that they might permit further examination of this question. They are called the *Leni and Pola* series and at present five books are available.

Each contains eight pages and they have been specially written within the kind of English vocabulary and sentence



Cover and pages from the "Leni and Pola" series of books.

structure commonly found in second-year English teaching in Pacific islands primary schools. The books are Melanesian in background (though by no means unacceptable to other areas in the Pacific) and have been illustrated by Teararoa Ariki, one of the Cook Islands trainees at present attending the Literature Production Training Centre in Honiara.

The price, 2/- per dozen copies, is so low that we hope it will encourage people to examine further the possibilities of developing more home reading by children in their area, in whatever language seems appropriate. Sample copies may be obtained from the Commission's Literature Bureau, G.P.O. Box 5254, Sydney, N.S.W., Australia.

THE STORY OF FIJI. G. K. Roth. Melbourne; Oxford University Press. A.10s. 6d. pp. 64.

The title of this book could be misleading in that some people might feel that "Story" of Fiji means only its history. A good chapter on the history of the Islands is of course included, but the book also gives an account of the geography,

peoples, produce, and government of the Islands. The author was at one time Secretary for Fijian Affairs and a noted authority on Fiji. The story is very simply written and will be very useful in Pacific islands schools at upper primary or lower secondary level. But its attractive production with many good half-tone photographs should also make it useful to the newcomer or tourist who seeks a simple but thoroughly accurate account of the Islands.

Reprint—Bureau Publications

In response to requests the Bureau has arranged the reprinting of four previously out-of-stock publications; they are:

FISH PRESERVATION SIMPLIFIED. (A.1/- per copy). A simple description of the preservation of fish by salting, drying, smoking and cooking methods. A French edition entitled *La Conservation du Poisson Simplifiee* is also available.

* PETER AND SEIVA (Book 1). (A.3/- per copy). A love story of the Pacific written specially to provide leisure reading.

* A FIRST HYGIENE BOOK. (A.3/- per copy). A simply-written, well-illustrated hygiene book for use at village level.

* THE MAGIC POT. (A.1/8 per copy). A traditional fairy tale from the Port Moresby district of Papua.

Copies of these publications are now available from the Literature Bureau, Box 5254, G.P.O., Sydney, at the prices indicated, plus postage. Discounts are granted on the books marked * for orders of 12 or more copies received from training institutions, missions, and schools, which have no bookseller in their area.

FOOD AND THE WORK IT DOES. Lucy Hamilton. London: Macmillan. A.3s. 0d. pp. 46.

This book, by Lucy Hamilton, Dietitian of the Department of Public Health, Port Moresby, was first published by Macmillan's for the Commission's Literature Bureau in 1955. After being out of print for a time, it is understood that some stocks are now available again. The book describes, in very simple English, the main different kinds of food available in the Pacific (primarily Melanesian areas) and indicates the role of these different kinds of food in the diet in maintaining good health. A discussion of the sources and functions of minerals and vitamins is also included. Admirable for use by women's groups, health educationists, upper classes in primary schools, etc. The book is printed in large, clear type and profusely illustrated.

Short Story Competition. Messrs. Dominie (New Guinea) Limited, publishers in Port Moresby, announce a short story writing competition open to members of the Auxiliary Division of the Public Service in Papua-New Guinea. Prizes are offered for stories suitable for reading for enjoyment, something like *Pawidu Wins His Goal* which was reviewed in these columns in the October, 1960, issue. The publishers reserve the right to publish any of the stories submitted. If a story is published as a book on its own, then the usual 10% Royalty will be paid to the author. If a story is published as part of a collection of short stories, then a publishing fee will be paid for each story used. Winners will be announced in Papua and New Guinea newspapers on April 30, 1961, and in the *South Pacific Bulletin*. Entries should reach Dominie (New Guinea) Limited, Box 388, P.O., Port Moresby, before February 1, 1961.

We feel this competition marks a courageous step forward in the production of literature for Pacific islands people, and hope that anyone who sees this announcement will be kind enough to pass on the information to those whom they feel could submit an entry.

Mobile Libraries. Progress reports on the functioning of the Travelling Library in the British Solomon Islands Protectorate and of the Mobile Library in New Caledonia, have recently been received from the respective Administrations. It will be recalled that these projects were assisted by Commission grants-in-aid. At this early stage in the development of these library services it is not planned to make any general distribution of the contents of the reports, it being envisaged that this will be able to be more usefully undertaken after the libraries have been functioning for a further period and additional reports received. However, those territories that are particularly interested in the possibility of establishing similar kinds of libraries are invited to communicate with the Director of the Commission's Literature Bureau, G.P.O. Box 5254, Sydney, N.S.W., Australia, who will be glad to make available to them information at his disposal.

Oversea Visual Aids Centre. Much information of great value on audio-visual aids is now beginning to come from the Oversea Visual Aids Centre of 31 Tavistock Square, London, W.C.1. This Centre was officially opened in 1959 with the backing of the British Government and the Trustees of the Nuffield Foundation. Its purposes are to provide advice and information on audio-visual equipment and materials and sources of supply; to conduct training courses in the making and use of visual aids in schools and community development work; to publish material relating to developments in the use of aural and visual aids; and to undertake research, in co-operation with organisations and people overseas, into the problems connected with audio-visual techniques. The Centre's services are available to all developing territories, particularly in tropical and sub-tropical areas, whether within or without the British Commonwealth.

Publications we have received so far are:

LEAFLET NO. 1. Some books, booklists and other publications relating to audio-visual aids.

LEAFLET NO. 2. Some aural and visual aids made available overseas by United Kingdom National and Industrial Organisations.

LEAFLET NO. 3. Information on materials for making and protecting wall-charts and handouts.

LEAFLET NO. 4. Health Education Overseas. (A list of charts, flannelgraphs, filmstrips, journals, etc., available.)

LEAFLET NO. 5. An experiment in the use of the record for the teaching of English. (This is a translation of a monograph originally produced by the Centre Audio-Visuel of the Ecole Normale Superieure de St. Cloud.)

We have found all these extremely practical and full of valuable information. A subscription to O.V.A.C. entitles the subscriber to the services of O.V.A.C. and all its publications. Subscriptions are stg.7/- for one year or stg.20/- for three years.

Rubber Stamps. A Literature Bureau naturally has a good deal to do with printing and in the October issue of this *Bulletin* we mentioned the work of Mr. Ian Forbes, Government Printer in the Cook Islands, who has built his own process camera for the preparation of blocks for printing illustrations. Mr. Forbes has now sent us another article in which he explains how he has made his own rubber stamps. While it may be felt that this relates more to economic development than to the work of the Literature Bureau we gladly applaud this kind of initiative which widens the outlets for the skill and enterprise of islanders.

The Literature Bureau, with Mr. Forbes' permission, will be glad to supply a copy of this article to enquirers.

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Index of Articles, by Subject and Author, published during 1960 (Vol. 10 No. 1-4)

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Author Index

Subject Index

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